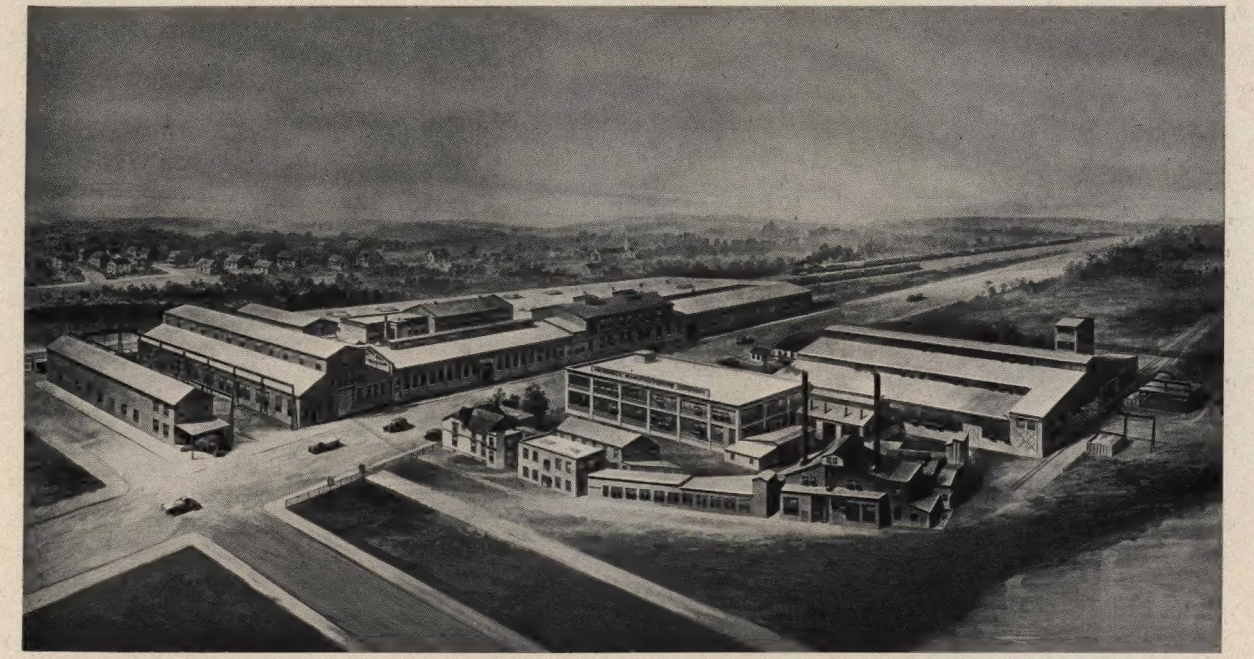
PERFORATED METALS

Elevator Buckets
Light and Heavy
Steel Plate Construction

HENDRICK MANUFACTURING COMPANY
General Offices and Works
CARBONDALE, PENNA.

PERFORATED
METALS



General Offices and Works of the HENDRICK MANUFACTURING CO., *Carbondale, Pa.*

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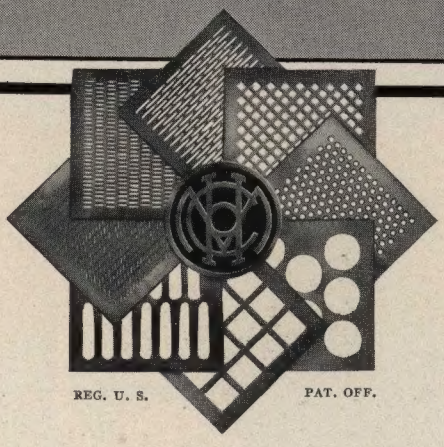
PERFORATED METALS



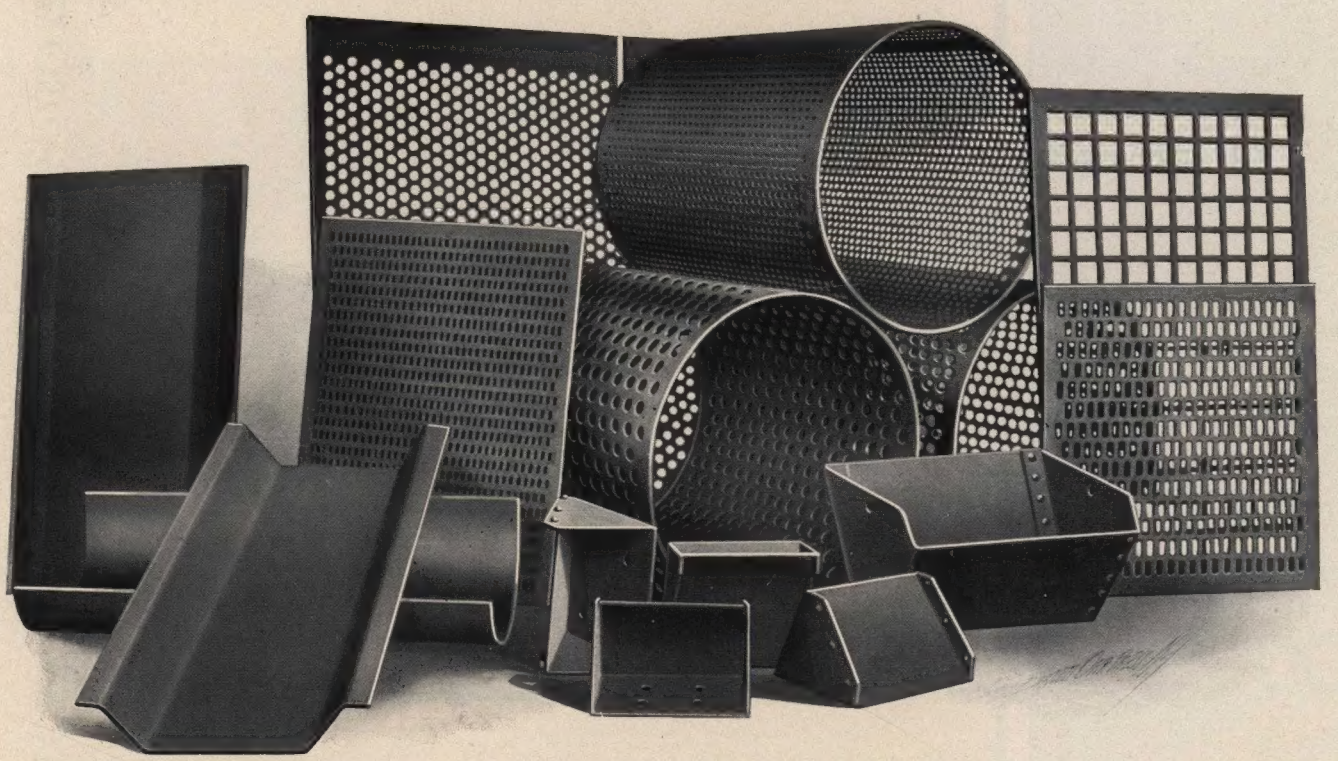
Elevator Buckets
Light and Heavy
Steel Plate Construction

HENDRICK MANUFACTURING COMPANY
General Offices and Works:
CARBONDALE, PENNA.

NEW YORK
30 Church Street

PITTSBURGH
Union Trust Bldg.

HAZLETON,
PENNSYLVANIA



HENDRICK Screens, Buckets and Troughs

Introduction

Our service to the Industries can best be described under three general heads, as follows:—

First

PERFORATED METALS: More than forty-five years' experience is back of our success in this line of work—Modern Shop Equipment, a complete stock of blank plates, competent workmen assure excellent service.

Steel, (Black or Galvanized) bronze, copper, brass, yellow metal, zinc, aluminum, lead, monel, Ascoloy, American Ingot Iron and other metals are available. The gauge may vary from No. 30 U. S. Standard to about 1″ in thickness.

Plates may be flat, flanged up or down at the ends or sides, with or without bolt holes. They may be rolled to suit cylindrical or conical screens. They may be perforated over the entire area, or left with any desired margin. Perforations may be varied on the same plate.

Second

PLATE DEPARTMENT: In this Department elevator buckets of all kinds are made; also conveyor flights and troughs; pans for conveyors and scrapers; picking tables and loading booms. This department can handle orders for standard, or special equipment as the user may desire.

Third

LIGHT AND HEAVY STEEL PLATE DEPARTMENT: In this department are made Tanks, Hoppers, Coal and Ash Bunkers, Stacks, Machinery Guards, Mine Cars, Truck Bodies, Grating and other similar Equipment.

For Coal Mines we make a complete line of flanged lip screens. This type of screen is suitable also for handling coke.

Manganese Bronze Screens are widely used in the Coal Mines, because they satisfactorily resist the action of sulphurous mine water.

Owners of quarries, sand, gravel, brick and metal mining plants, will be interested in our facilities for making perforated metal screens, and also in our special screens which are illustrated under the screen plate section.

Screens, buckets, troughs and other equipment cannot, of course, be made up complete in advance, as each customer's requirements are different. They are not "stock" equipment, so to speak. But due to our supply of blanks and our shop facilities, our skilled workmen can turn out orders of any size promptly.

Where special plates are required, our proximity to rolling mills enables us to obtain stock very quickly.

We also manufacture Perforated Metal Grilles and Mitco Interlocked Steel Grating (see pages 30 and 50). Grilles are available in many standard and special designs. Mitco Grating is furnished for flooring, stair-treads and armorgrids. Catalogues and other literature on these products will be mailed on request.

HENDRICK MANUFACTURING COMPANY

Where Perforated Metals Are Used

PERFORATED Metals can be furnished in practically any metal desired. Following are some of the many places where Perforated Metal Screens find application:

Abattoirs
Acid Factories
Agricultural Machinery
Alkali Works
Asbestos Plants
Automobiles

Blast Furnaces
Bleaching Plants
Boilers
Brick Works
Buckets

Cement Plants
Centrifugals
Chemical Works
Clay Working Plants
Coal Breakers, Washeries and Tipples
Coke Plants
Coffee Roasters
Concentrators
Copper Refineries
Cottonseed Oil Mills
Crushers

Detinning Plants
Dye Works

Electric and Steam Heating Shields
Electrical Industry
Elevators
Extract Plants

Feed Mills
Fertilizer Plants
Foundries
Filter Presses and Filters

Garbage Plants
Grain Mills
Gravel Plants
Grilles
Guano Plants
Gypsum Plants

Interior Decoration

Jigs

Kaolin Mines

Lignite Mines
Limestone Plants
Locomotive Spark Arresters
Locomotive Grease Cellars
Locomotive Lubricators
Locomotive Stokers
Locomotive Strainers

Machinery Guards
Metal Mines
Meters (Liquid)
Munition Plants
Nitrate Plants

Oil Refineries
Ore Mines
Ore Washing Plants

Paper Machinery
Paraffin Wax Plants
Peanut Assorters
Phosphate Plants
Portable Elevators
Portable Screens

Powder Mills
Pulp Mills
Pyrites Mines

Quarries

Rice Mills
Road Machinery

Sand Blast Machinery
Sand Plants
Sewage Disposal Plants
Sewer Pipe Plants
Shakers
Ships
Slag Plants
Smelters
Spark Arresters
Steam Traps
Steel Plants
Stokers
Stone Crushers
Strainers
Sugar Refineries

Tank Bottoms
Tar Extractors
Terra Cotta Plants
Tile Plants
Tobacco Product Plants

Ventilators

Water Works
Wheat Washers
Woolen Mills

Zinc Smelters

Ordering Information

NUMBER OF SHEETS REQUIRED
GAUGE OR THICKNESS

We furnish steel plates and sheets according to U. S. Gauge unless otherwise specified.

Bronze and copper follow the Birmingham Gauge.

Brass follows Brown and Sharpe Gauge.

(Tables giving weights are shown on pages 55-57.)

KIND OF METAL
SIZE OF SHEETS IN INCHES

Unless otherwise noted, the smaller dimension will be considered the width.

SIZE AND SHAPE OF PERFORATION

Our standard sizes of round, square and slotted holes with method of measuring centers and bars are given on pages 10-29 incl. Oval holes run in the direction of the long side of the sheet unless otherwise instructed.

MARGINS ON ENDS AND SIDES
LOCATION AND SIZE OF BOLT HOLES, IF ANY

Plates and sheets are furnished flat; flanged up or down at ends or sides; rolled to diameter or radius for revolving and conical screens, perforated over the entire surface or with blank margins for bolt holes or attachments.

When ordering flanged plates or sheets it is advisable to furnish us with sketches showing sizes, gauges and meshes, noting whether flanges are to be up or down. Tables for Anthracite coal are shown on page 54.

For ordering cylindrical or conical screens it is important that we be given the number of pieces to the round, either the inside or outside diameter (state which), length, thickness of material, size of perforations, butt joints fastened with clips or straps, or lap joints bolted or riveted. Illustrations and instructions are given on page 41. It is particularly desirable that sketches be furnished for tapered sheets.

On page 47 are given instructions for ordering elevator buckets. By following these closely your order will be expedited.

Unless otherwise stated, shipment will be made via freight, starting over one of the following lines on which we are located:

Delaware & Hudson Railroad
Erie Railroad
New York, Ontario & Western

Relation Between Screen Aperture and Size of Largest Particle in Product Produced With Various Types of Screens.

Size of Particle Inches	SIZE OF APERTURE					
	ROUND			SQUARE		
	Flat Surface	Steeply Sloping Surface (b)	Revolving Screen	Flat Surface	Steeply Sloping Surface	Revolving Screen
0.25	0.35	0.50	0.50	0.28	0.38	0.40
0.375	0.55	0.75	0.75	0.45	0.57	0.60
0.50	0.75	1.0	0.88	0.62	0.75	0.75
0.75	1.0	1.50	1.25	0.81	1.15	1.15
1.0	1.5	2.0	1.88	1.15	1.50	1.50
1.25	1.75	2.50	2.25	1.40	2.0	1.75
1.5	2.0	2.75	2.5	1.62	2.25	2.0
1.75	2.5	3.25	3.0	2.0	2.75	2.5
2.0	2.75	3.75	3.5	2.25	3.0	2.75
2.5	3.5	4.75	4.0	2.88	3.75	3.25
3.0	4.25	5.50	5.0	3.5	4.5	4.0
3.5	5.0	6.50	6.0	4.0	5.25	4.75
4.0	5.75	7.50	7.25	4.75	6.0	6.0

(b) 40° to 45°

Above table is given by permission from Handbook of Ore Dressing by A. F. Taggart. John Wiley & Sons, Publishers.

Percentage of Open Area in Screen Plates

THE capacity of screens is governed entirely by the amount of open area in the screen plates.

The open area of screen plates is governed by the size, shape and the spacing of the holes.

The number of holes per square inch or square foot in screen plates with round perforations on standard staggered arrangement of holes is equal to the number of holes per linear inch or foot, squared, and this result multiplied by 1.15.

The open area of round and square holes can be found by the following formulae:

$$\text{Standard staggered arrangement round holes—Open Area} = \frac{.905D^2}{(S+D)^2}$$

$$\text{Standard straight arrangement round holes—Open Area} = \frac{.785D^2}{(S+D)^2}$$

D = Diameter of hole.
S = Metal (bar) between holes.*

For square perforations either straight or staggered:

$$\text{Open Area} = \frac{D^2}{(S+D)^2}$$

D = Size of square hole.
S = Metal (bar) between holes.

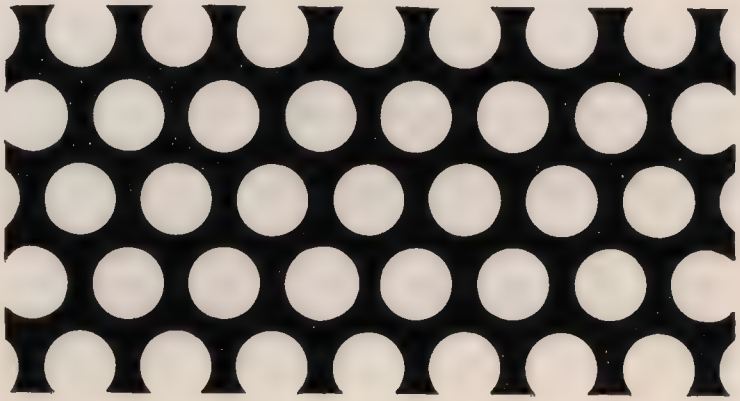
The formulae for finding the open area of slotted perforations are so complicated that they are omitted here. However the open area of any of these perforations can be obtained from the manufacturer.

* NOTE: *The metal between perforations is called the bar.*

The open area of screen plates with round and square holes and with different arrangements are given below:

	Standard Staggered Round Open Area	Straight Round Open Area	Straight or Staggered Square Open Area
Bar equal to diameter or size of perforations	22½%	20%	25%
Bar equal to ½ diameter or size of perforations	40%	35%	44½%
Bar equal to ⅓ diameter or size of perforations	51%	44%	56%
Bar equal to ¼ diameter or size of perforations	58%	50%	64%
Bar equal to ⅕ diameter or size of perforations	63%	54½%	69½%

It will be seen from this table that the square hole gives the most open area, round holes staggered give slightly less and round holes straight arrangement gives the least. The wearing qualities of these plates are in the reverse order, viz., the straight arrangement will last the longest, the staggered a little less and the square the least. With oblong slotted holes the open area in most arrangements is greater than with square perforations when the bar is of equal thickness.



Round Perforations

On pages 11 to 14 inclusive are listed the standard sizes of round perforations we can furnish together with spacing of holes and the maximum gauge of material according to United States Standard Gauge. We can punch one or two gauges heavier in Brass, Bronze or Copper.

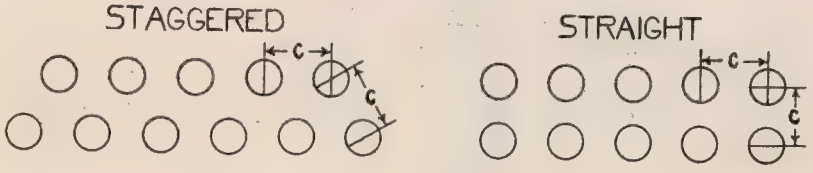
If you do not find the size or spacing you desire in the following tables, communicate with us as we are constantly adding new sizes as sufficient demand arises, or it may be by some special arrangement of tools we can meet your requirements. Unusual sizes can be furnished by special agreement.

On the opposite page is shown the method of measuring the centers or spacings of perforations.

Method of Measuring Spacing of Perforations

C=Centers

Round



Tables of Perforations

Size	Centers	Max. Gauge	Open Area
.027(1)	.05	26	26½%
.027(1A)	.057	26	20%
.027	.099	26	7%
.032(2)	.0555	26	30%
.032(2A)	.06401	26	22½%
.032	.1108	26	7½%
.038(3)	.066	24	30%
.038(3A)	.0769	24	22%
.038	.133	24	7½%
1 m.m.	2 m.m.	22	22½%
1 m.m.	2/64	22	7%
3/64	1/10	20	20%
3/64	11/64	20	7%
3/64	3/32	20	23%
3/64	5/32	20	8%
.055	1/10	18	28%
.055	11/64	18	9½%
.058	1/10	18	30½%
.058	11/64	18	10½%
1/16	7/64	16	29¾%
1/16	3/16	16	11%
1/16	.149	16	17½%

Size	Centers	Max. Gauge	Open Area
1/16	17/64	16	5½%
1/16	⅛ (Special)	16	22½%
1/16	5/32 (Special)	16	15½%
.075	⅛	16	32½%
.075	7/32	16	10¾%
1/64	⅛	16	35%
5/64	7/32	16	11½%
.085	9/64	14	33%
.085	¼	14	10½%
1/12	9/64	14	36%
1/12	¼	14	11½%
3/32	5/32	14	33%
3/32	9/32	14	10%
3/32	3/16	14	22½%
3/32	21/64	14	8%
3/32	7/32	14	17%
3/32	⅜	14	5¾%
3/32	17/64	14	11%
7/64	11/64	12	36½%
7/64	19/64	12	12½%
⅛	7/32	11	29½%
⅛	⅜	11	10%

Round Perforations—Continued

Size	Centers	Max. Gauge	Open Area
1/8	3/16	11	40%
1/8	11/32	11	12%
1/8	1/4	11	22½%
1/8	7/16	11	7½%
1/8	1/2	3/32	5¾%
9/64	7/32	10	37½%
9/64	3/8	10	12½%
5/32	7/16	10	11½%
5/32	5/16	10	22½%
5/32	1/4	10	35½%
11/64	17/64	10	38%
11/64	29/64	10	13%
11/64	3/8	10	19%
11/64	5/16	10	27½%
11/64	35/64	10	9%
3/16	1/4	18	51%
3/16	19/64	10	36½%
3/16	1/2	10	12¾%
3/16	5/16	3/16	32¾%
3/16	35/64	3/16	10½%
3/16	3/8	3/16	22½%
3/16	41/64	3/16	7¾%
7/32	5/16	8	44½%
7/32	35/64	8	14½%
7/32	11/32	10	36½%
7/32	19/32	10	12½%
7/32	3/8	8	31%
7/32	21/32	8	10%
15/64	3/8	6	35%
15/64	21/32	6	11½%
1/4	1/2	1/4	22½%
1/4	3/8	1/4	40%
1/4	21/32	1/4	13¼%
1/4	7/16	1/4	29½%
1/4	3/4	1/4	10%
1/4	11/16 (Special)	11	12%
1/4	1⅜ (Special)	11	3%
1/4	1	1/4	5½%
1/4	9/16 (Special)	3/16	18%
17/64	25/64	6	42%
17/64	11/16	6	13½%
9/32	13/32	6	43%
9/32	45/64	6	14½%
19/64	7/16	1/4	42%
19/64	25/32	1/4	13%
5/16	1/2	1/4	35%
5/16	7/8	1/4	11¾%
5/16	1 5/16	3/16	5%
5/16	5/8	3/8	22¾%
5/16	1 3/32	3/8	7½%
5/16	3/4	1/4	16%
5/16	15/32	10	40%
5/16	13/16	1/4	13½%
21/64	1/2	1/4	37%
21/64	7/8	1/4	12¼%
11/32	17/32	5/16	38%
11/32	59/64	5/16	12½%
11/32	1/2	1/4	43%
11/32	55/64	1/4	14½%
23/64	17/32	1/4	41½%
23/64	59/64	1/4	13¾%
3/8	9/16	3/16	40%
3/8	5/8	3/8	32½%
3/8	1 3/32	1/4	10¾%
3/8	25/32	3/8	21%
3/8	1⅜	3/8	6¾%
3/8	3/4	3/8	22½%
3/8	1 19/64	3/8	7½%
3/8	1/2	3/16	51%
3/8	55/64	3/16	17¼%
3/8	9/16	5/16	40%
3/8	1 1/32	5/16	12%
3/8	1	1/4	12¾%
25/64	17/32	1/4	48½%
25/64	59/64	1/4	16%
13/32	5/8	1/4	38%
13/32	1 3/32	1/4	12½%
7/16	11/16	3/8	36½%
7/16	1⅝	3/8	13%
7/16	7/8	3/8	22½%
7/16	1½	3/8	7¾%
7/16	5/8	1/4	44¼%
7/16	1 5/64	1/4	14½%
7/16	3/4	18	31%
7/16	1 19/64	18	10½%
15/32	7/8 (Special)	5/16	26%
1/2	15/16	3/8	26%
1/2	3/4	3/8	40%
1/2	1 19/64	3/8	13½%
1/2	7/8	3/8	29½%
1/2	1½	3/8	10%
1/2	1 1/16	1/4	48%
1/2	1 7/32	1/4	15¼%
1/2	1	1/2	22½%
1/2	1 47/64	1/2	7½%
1/2	any	1/2	

Round Perforations—Continued

Size	Centers	Max. Gauge	Open Area
17/32	3/4	1/4	45½%
17/32	1 19/64	1/4	15¼%
9/16	3/4	1/4	51%
9/16	1 19/64	1/4	17¼%
9/16	7/8	3/8	38%
9/16	1 33/64	3/8	12½%
5/8	1	1/2	35½%
5/8	1 47/64	1/2	11¾%
3/8	1 3/16	1/2	25%
5/8	2 1/16	1/2	8½%
5/8	1⅛	1/2	28%
5/8	1 15/16	1/2	9½%
5/8	13/16	1/4	53¾%
5/8	1 13/32	10	18%
5/8	1 7/16	1/4	17½%
5/8	7/8	1/4	47%
5/8	1 33/64	1/4	15½%
5/8	1 47/64	3/8	11¾%
5/8	2½	3/8	5¾%
5/8	2¼ (Special)	16	7%
5/8	2 (Special)		9%
11/16	15/16	1/4	48½%
11/16	1⅛	1/4	16¼%
11/16	1⅛	3/8	34%
11/16	1 21/64	3/8	11¼%
23/32	1	1/4	46½%
23/32	1 47/64	1/4	15½%
3/4	1	1/4	51%
3/4	1 47/64	1/4	17%
3/4	1⅛	1/2	40%
3/4	1½	1/2	22½%
3/4	1⅜	5/8	27%
3/4	2⅜	5/8	9%
3/4	1 1/16	3/8	45%
3/4	1⅞	3/8	15%
3/4	1 15/16	1/2	13½%
25/32	1 3/16	5/16	39%
25/32	1	1/4	55%
25/32	1 47/64	1/4	18½%
13/16	1⅛	5/16	47¼%
13/16	1 3/16	1/2	42½%
13/16	1 21/64	5/16	15¾%
13/16	2 1/16	1/2	14%
27/32	1⅛	1/4	51%
27/32	1 31/32	1/4	17%
7/8	1⅛	1/4	55%
7/8	1 31/32	1/4	18%
7/8	1¼	3/8	44½%
7/8	2¾	3/8	14½%
7/8	1½	1/2	31%
7/8	2 19/32	1/2	10¼%
15/16	1¼	5/16	51%
15/16	2 1/16	5/16	18½%
15/16	1⅜	3/8	43%
15/16	2 13/32	3/8	13¾%
15/16	1 7/16	1/4	38½%
1	1⅜	5/16	48%
1	1 11/16	3/8	32%
1	2 1/16	3/8	10½%
1	1½	1/2	40%
1	2 19/32	1/2	13½%
1	1¾	3/8	30%
1	3	3/8	10%
1	1⅜	1/2	48%
1	2⅜	1/2	16%
1 1/32	any	3/4	
1 1/16	any	3/4	
1⅛	1⅝	5/8	43¼%
1⅛	1 11/16	1/2	40%
1⅛	1¾	3/8	38%
1⅛	2 5/16	1/2	23%
1⅛	1½	5/16	51%
1⅛	2 29/64	1/2	19%
1⅛	any	3/4	
1⅛	2 43/64	1/2	16½%
1 3/16	1¾	1/4	41¼%
1 3/16	2¼ (Special)	1/8	25%
1 3/16	1 11/16	1/4	45%
1¼	1 9/16	5/16	58%
1¼	1¾	5/8	46¼%
1¼	2¼	1/4	28%
1¼	1 11/16	1/2	50%
1¼	2 5/64	1/2	16½%
1¼	1⅞	1/2	40%
1¼	1 15/16	5/8	37½%
1¼	any	3/4	
1 5/16	1¾	1/4	51%
1 5/16	2 (Special)	3/8	39%
1 5/16	any	3/4	
1⅜	1⅞	5/16	48½%
1⅜	2⅛	3/8	38%
1⅜	2	1/2	43%
1⅜	any	3/4	
36 m.m.	1¾	5/16	51¼%
1 7/16	2	3/8	46½%
1 7/16	1 13/16	1/2	57%

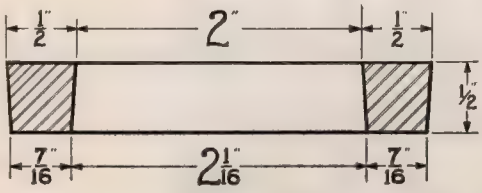
Round Perforations—Continued

Size	Centers	Max. Gauge	Open Area
1 7/16	any	3/4	
1 1/2	2	5/16	51%
1 1/2	2 1/8	1/4	45 1/4%
1 1/2	1 7/8	1/2	58%
1 1/2	2 3/16	5/8	42 1/2%
1 1/2	any	3/4	
1 17/32	2	5/16	53%
1 9/16	any	3/4	
1 9/16	2 1/16	5/16	52%
1 9/16	any	3/4	
1 5/8	2	5/16	55%
1 5/8	2	5/16	60%
1 5/8	2 1/4	5/8	47 1/2%
1 5/8	any	3/4	
1 21/32	2 3/16	3/8	51 1/2%
1 11/16	2 1/4	3/8	51%
1 11/16	any	3/4	
1 3/4	2	3/8	69%
1 3/4	2 3/8	5/8	49%
1 3/4	any	3/4	
1 13/16	2 7/16	3/8	50%
1 13/16	any	3/4	
1 7/8	any	3/4	
1 15/16	any	3/4	
2	2 5/8	1/2	53 1/2%
2	2 3/4	1/2	48%
2	any	3/4	
2 1/16	any	3/4	
2 1/8	any	3/4	
2 3/16	any	3/4	
2 1/4	2 7/8	3/8	55 1/2%
2 1/4	3	1/2	51%
2 1/4	any	3/4	
2 5/16	2 7/8	1/2	58 1/2%
2 5/16	any	3/4	
2 3/8	2 7/8	1/2	61 1/2%
2 3/8	any	3/4	
2 7/16	3 1/8	1/2	55%
2 7/16	any	3/4	
2 1/2	3 1/4	1/2	53 1/2%
2 1/2	any	3/4	
2 17/32	any	3/4	
2 9/16	3 3/16	1/2	58 1/2%
2 9/16	any	3/4	
2 5/8	3 3/8	1/2	54 1/2%
2 5/8	any	3/4	
2 11/16	any	3/4	
2 3/4	any	3/4	

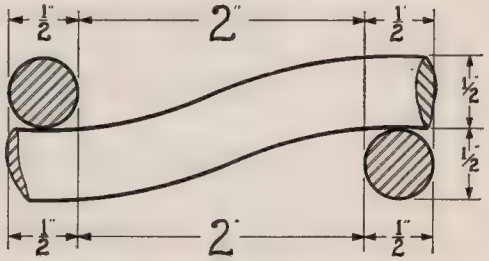
Size	Centers	Max. Gauge	Open Area
2 13/16	any	3/4	
2 7/8	any	3/4	
2 15/16	any	3/4	
3	3 3/4	1/2	58%
3	any	3/4	
3 1/16	any	3/4	
3 1/8	any	3/4	
3 3/16	any	3/4	
3 1/4	4	1/2	60%
3 1/4	any	3/4	
3 3/8	4 3/16	1/2	59%
3 3/8	any	3/4	
3 7/16	4 3/16	1/2	61%
3 7/16	any	3/4	
3 1/2	any	3/4	
3 9/16	any	3/4	
3 5/8	any	3/4	
3 3/4	any	3/4	
3 7/8	any	3/4	
4	any	3/4	
4 1/16	any	3/4	
4 1/8	any	3/4	
4 3/16	any	3/4	
4 1/4	any	3/4	
4 3/8	any	3/4	
4 7/16	any	3/4	
4 1/2	any	3/4	
4 5/8	any	3/4	
4 3/4	any	3/4	
4 7/8	any	3/4	
5	any	3/4	
5 1/8	any	3/4	
5 1/4	any	3/4	
5 1/2	any	3/4	
5 3/4	any	3/4	
6	any	3/4	
6 1/8	any	3/4	
6 1/4	any	3/4	
6 7/16	any	3/4	
6 1/2	any	3/4	
6 5/8	any	3/4	
6 3/4	any	3/4	
7	any	3/4	
7 1/4	any	3/4	
7 1/2	any	3/4	
7 3/4	any	3/4	
8	any	3/4	
8 1/2	any	3/4	

Comparison of Perforated Metal and Woven Wire Screen

Cross section of a 2-inch square perforated plate ½ inch thick with ½-inch bar, and a 2-inch woven wire screen with ½-inch rods.



A perforated plate has full clearance from top to bottom consequently will not blind and maintains uniformity of mesh. Area of bar between perforations is 0.234 square inches. Weight per square foot is 8.2 pounds.

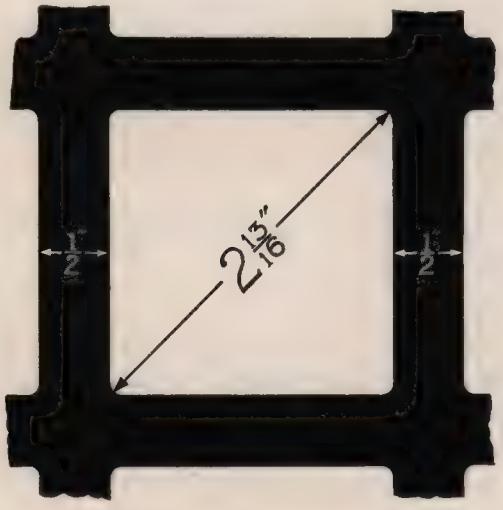


A wire screen does not have the full clearance of perforated plate. Area of bar between holes is 0.196 square inches.

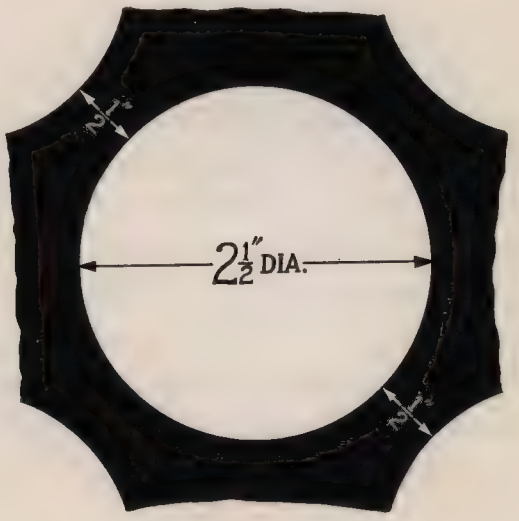
Weight per square foot is 6.9 pounds.

Comparison of Round and Square Holes

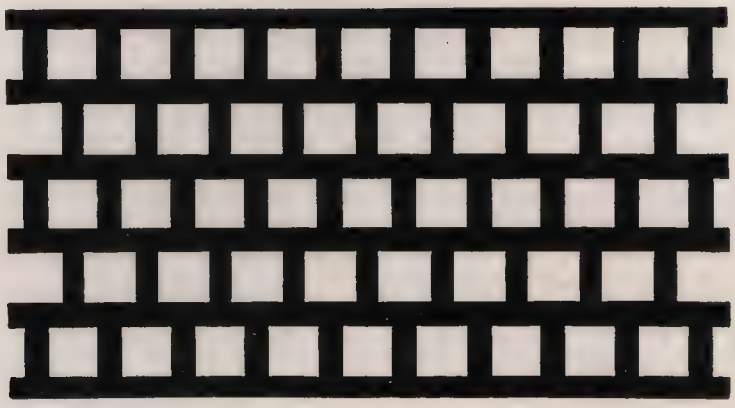
A screen with square holes whose dimension is 0.8 the diameter of a given round hole will screen particles that are about the same size as obtained from the given round hole screen. Thus a 2-inch square perforation will give approximately the same product as a 2½-inch round perforation. However, for accurate sizing the round perforation is the better, as it has only one dimension—the diameter. The square perforation has two dimensions—the distance across the flats and that across the corners. This is shown below.



2-inch square perforation
½-inch bar, ½-inch plate
22.5 holes per sq. ft.
64% open area.



2½-inch round perforation
½-inch bar, ½-inch plate
18.5 holes per sq. ft.
63% open area.



Square Perforations

On pages 17 to 19 inclusive we list the standard sizes of square perforations we can furnish together with spacing of holes and the maximum gauge of material according to United States Standard Gauge. We can punch one or two gauges heavier in Brass, Bronze or Copper.

If you do not find the size or spacing you desire in the following tables, communicate with us as we are constantly adding new sizes as sufficient demand arises, or it may be by some special arrangement of tools we can meet your requirements.

Unusual sizes can be furnished by special agreement.

On the opposite page is shown the method of measuring the centers or spacings of perforations.

Standard Perforated Metal Screen Plate

Method of Measuring Perforations

C=Centers

Square

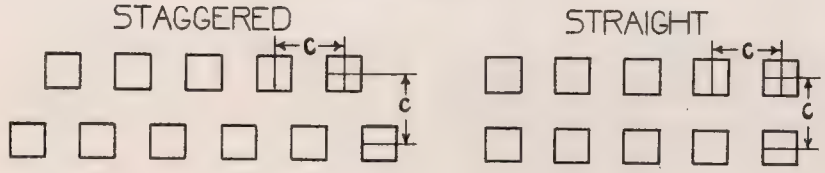


Table of Perforations

Size	Centers	Max. Gauge	Open Area
1/8	1/4	12	25%
5/16	5/16	12	36%
3/16	3/8	10	25%
3/16	3/4	10	6¼%
1/4	3/8	6	44½%
1/4	7/16	3/16	32¾%
1/4	7/8	3/16	8¼%
1/4	1/2	1/4	25%
1/4	1	1/4	6¼%
5/16	15/32	1/4	44½%
1/4	15/16	1/4	11¼%
5/16	1/2	8	39%
5/16	1	8	9¾%
3/8	19/32	3/16	40%
3/8	5/8	5/16	36%
3/8	1¼	5/16	9%
3/8	9/16	1/4	44½%
3/8	1⅛	1/4	11%
7/16	9/16	1/4	60½%
7/16	1⅛	1/4	15%
7/16	11/16	3/8	40%
7/16	1⅜	3/8	10%
1/2	3/4	3/8	44½%
1/2	1½	3/8	11%
1/2	7/8	3/8	32¾%
1/2	1¾	3/8	8¼%
1/2	11/16	1/4	53%
1/2	1⅜	1/4	13¼%
9/16	3/4	1/4	56%
9/16	1½	1/4	14%
9/16	13/16	1/4	48%
9/16	1⅜	1/4	12%
5/8	27/32	7/32	55%
5/8	1 11/16	3/16	13¾%
5/8	7/8	1/4	51%
5/8	1¾	1/4	13%
5/8	1	3/8	39%
5/8	2	3/8	9¾%
5/8	13/16	1/4	59%
5/8	1⅛	1/4	14¾%

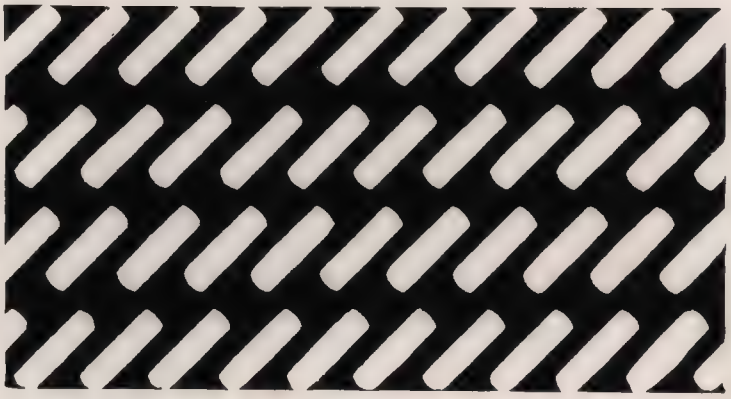
Square Perforations—Continued

Size	Centers	Max. Gauge	Open Area	Size	Centers	Max. Gauge	Open Area
⅝	any	⅝		1	1⅜	⅜	53%
21/32	21/32	¼	46%	1	1¼	5/16	64%
11/16	⅞	¼	62%	1	2½	5/16	16%
11/16	1¾	¼	15½%	1	2¾	⅜	13¼%
¾	15/16	6	64%	1	1 7/16	¼	48½%
¾	1⅞	10	16%	1	1½	½	44½%
¾	1	5/16	56%	1	3	½	11%
¾	2	5/16	14%	1	any	¾	
¾	1⅛	⅜	45%	1	1⅝	½	38%
¾	2¼	⅜	11%	1	3¼	½	9½%
¾	1¼	⅜	36%	1 1/16	1 9/16	½	46½%
¾	2½	⅜	9%	1 1/16	3⅛	½	11½%
¾	1½	⅝	25%	1⅛	1½	⅜	56%
¾	3	⅝	6¼%	1⅛	3	⅜	14%
¾	1⅜	⅜	30%	1⅛	1⅜	5/16	67%
¾	2¾	⅜	7½%	1⅛	any	¾	
¾	any	¾		1⅛	2¾	5/16	16¾%
13/16	1	¼	66%	1 3/16	1 7/16	¼	68%
13/16	2	¼	16½%	1 3/16	2⅞	¼	17%
13/16	1 1/16	¼	58½%	1¼	1½	5/16	69%
13/16	2⅛	¼	14½%	1¼	3	5/16	17½%
⅞	1 1/16	16	67%	1¼	1⅝	⅜	59%
⅞	2⅛	16	17%	1¼	3¼	⅜	15%
⅞	1⅜	⅜	40½%	1¼	any	¾	
⅞	2¾	⅜	10%	1 5/16	1 11/16	¼	61%
⅞	1⅛	¼	60%	1 5/16	1 9/16	5/16	71%
⅞	2¼	¼	15%	1 5/16	3⅛	5/16	17¾%
⅞	1¼	⅜	49%	1⅜	1⅜	⅜	71½%
⅞	2½	⅜	12%	1⅜	3¼	⅜	18%
⅞	any	¾		1⅜	1¾	⅜	62%
15/16	1 3/16	¼	62½%	1⅜	3½	⅜	15%
15/16	2⅜	¼	15½%	1⅜	1 13/16	⅜	57½%

Square Perforations—Continued

Size	Centers	Max. Gauge	Open Area
1⅜	3⅛	⅜	14½%
1⅜	any	¾	
1 7/16	1 13/16	¼	63%
1 7/16	1¾	5/16	67%
1 7/16	3½	5/16	16¾%
1½	1¾	½	73½%
1½	3½	½	18¼%
1½	1 13/16	5/16	68½%
1½	3⅝	5/16	17%
1½	1⅞	½	64%
1½	3¾	½	16%
1½	2	½	56%
1½	4	½	14%
1½	2¼	⅜	44½%
1½	4½	⅜	11%
1½	any	¾	
1 9/16	any	¾	
1⅝	2	⅜	66%
1⅝	4	⅜	16½%
1⅝	2⅛	⅜	59%
1⅝	4¼	⅜	14½%
1⅝	any	¾	
1¾	2⅛	⅜	68%
1¾	4¼	⅜	17%
1¾	2¼	10	60½%
1¾	any	¾	
1⅞	2¼	⅜	69½%
1⅞	4½	⅜	17¼%
1⅞	any	¾	
2	2⅜	5/16	71%
2	4¾	5/16	17¾%
2	any	¾	
2 1/16	any	¾	

Size	Centers	Max. Gauge	Open Area
2⅛	any	¾	
2 5/32	any	¾	
2 3/16	any	¾	
2¼	2⅝	⅜	73½%
2¼	5¼	⅜	18¼%
2¼	any	¾	
2 5/16	2 11/16	½	74%
2 5/16	5⅜	½	18½%
2⅜	any	¾	
2 7/16	2⅞	½	72%
2 7/16	5¾	½	18%
2½	3	5/16	69½%
2½	any	¾	
2⅝	any	¾	
2¾	3¼	½	71½%
2¾	any	¾	
2⅞	any	¾	
2 15/16	any	¾	
3	any	¾	
3 1/16	any	¾	
3⅛	any	¾	
3¼	any	¾	
3⅜	any	¾	
3½	any	¾	
3¾	any	¾	
3⅞	any	¾	
4	any	¾	
4¼	any	⅝	
4½	any	⅝	
4¾	any	⅝	
5	any	⅝	
5½	any	⅝	
6	any	⅝	



Diagonal Perforations

On page 21 we list the standard gauges of diagonal perforations we can furnish together with the spaces between holes and the maximum gauge of material according to United States Standard Gauge. We can punch one or two gauges heavier in Brass, Bronze or Copper.

If you do not find the size or spacing you desire in the following tables, communicate with us as we are constantly adding new sizes as sufficient demand arises, or it may be by some special arrangement of tools we can meet your requirements.

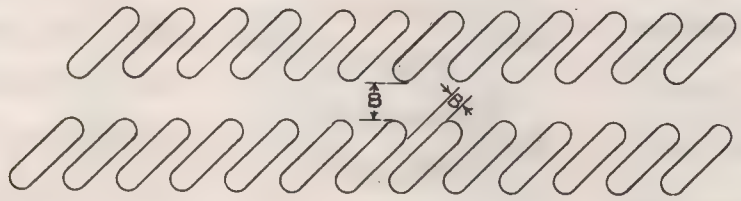
Unusual sizes can be furnished by special agreement.

On the opposite page is shown the method of measuring the bar or space between holes.

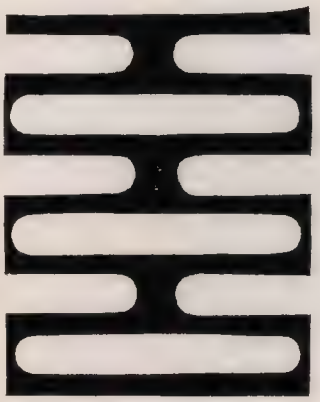
Method of Measuring Spacing Between Slot Perforations

B=Bar

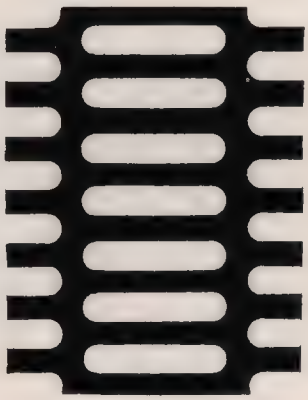
Diagonal



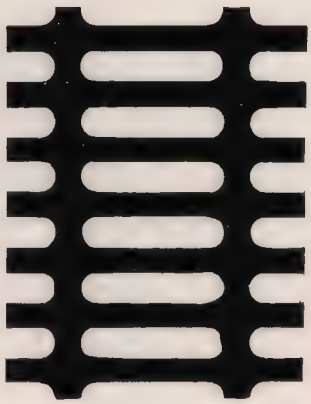
Size	End Bar	Side Bar	Max. Gauge
.0135 x ½	11/64	any	26
.015 x ½	11/64	any	28
.0165 x ½	11/64	any	25
.018 x ½	11/64	any	25
.020 x ½	11/64	any	24
.022 x ½	11/64	any	22
.024 x ½	11/64	any	22
.027 x ½	11/64	any	20
.029 x ½	11/64	any	20
.035 x ½	11/64	any	20
.042 x ½	11/64	any	14
.049 x ½	5/32	any	16
.058 x ½	5/32	any	16
1/16 x ½	5/32	any	16
3/32 x ½	9/64	any	14
2½ m.m. x ½	9/64	any	14
1/10 x 3/8	.241	1/8	16
1/8 x ½	1/8	any	11
1/8 x ½	1/4	3/16	20
5/32 x 3/8	1/4	5/32	10
5/32 x 7/16	3/16	5/32	16
5/32 x ½	5/32	5/32	8
3/16 x ½	5/32	5/32	8
3/16 x ¾	1/8	5/32	10
3/16 x ¾	5/32	3/16	10
.20 x .98	.20	.20	
5 m.m. x 25 m.m.	5 m.m.	5 m.m.	8
¼ x 7/16	3/8	5/32	6
¼ x ½	5/16	5/32	8
½ x 2	7/16	7/16	5/16
5/8 x 1 9/16	¼	5/16	5/16



Side Stagger



End Stagger



Straight Both Ways

Slot Perforations

On pages 23 to 28 inclusive we list the standard sizes of slot perforations we can furnish together with spacing of holes and the maximum gauge of material according to United States Standard Gauge. We can punch one or two gauges heavier in Brass, Bronze or Copper.

If you do not find the size or spacing you desire in the following tables, communicate with us as we are constantly adding new sizes as sufficient demand arises, or it may be by some special arrangement of tools we can meet your requirements.

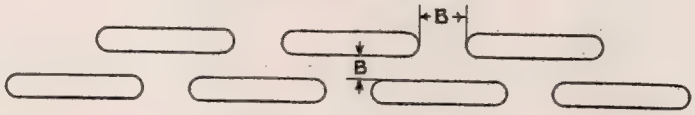
Unusual sizes can be furnished by special agreement.

On the opposite page is shown the method of measuring the bar or space between holes.

Method of Measuring Spacing of Perforations

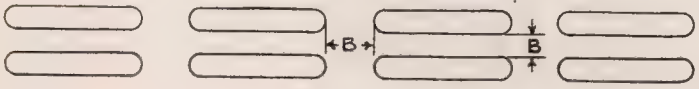
B=Bar

Side Stagger



End Stagger

Straight Both Ways



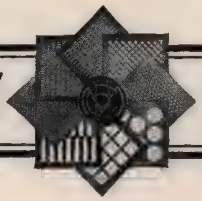
Side Stagger Perforations

Size	Bar	Max. Gauge
.018 x ½	.107	25
.020 x ½	.105	24
.022 x ½	.103	22
.024 x ½	.101	22
.027 x ½	.098	20
.029 x ½	.096	20
.033		
1/30 x ½	.1229	20
.035 x ½	.1212	20
.040		
1/25 x ½	.1162	20
.042 x ½	.1142	16
3/64 x 1¼	21/128	18
.049 x ½	.107	16
.058 x ½	.1295	16
1/16 x ½	⅛	16
1/16 x ¾	⅛	16
1/16 x 1	3/16	16

Size	Bar	Max. Gauge
1/16 x 1⅜	any	14
1/14 x 1⅜	.1786	16
5/64 x ½	7/64	11
5/64 x ½	9/64	14
3/32 x ½	3/32	14
3/32 x ½	⅛	14
7/64 x ½	⅛	12
⅛ x ½	5/32	11
⅛ x ½	⅛	11
⅛ x 1	¼	11
⅛ x 4	any	11
5/32 x ⅝	7/64	10
3/16 x ¾	⅛	8
3/16 x 1	3/16	3/16
3/16 x 1¼	¼	¼
3/16 x 1¼	⅛	8
3/16 x 1½	⅛	3/16
3/16 x 1½	3/16	3/16

Side Stagger—Continued

Size	Bar	Max. Gauge
3/16 x 1½	3/8	1/4
3/16 x 2	3/16	3/16
3/16 x 3¼	any	3/16
3/16 x 4	any	3/16
3/16 x 7	any	3/16
7/32 x 5/8	1/8	12
1/4 x 1/2	3/16	3/16
1/4 x 3/4	1/4	10
1/4 x 1	5/16	1/4
1/4 x 1	any	1/4
1/4 x 1¼	1/8	8
1/4 x 1¼	any	1/4
1/4 x 1¼	3/16	1/4
1/4 x 1½	1/8	8
1/4 x 1½	3/16	1/4
1/4 x 2	3/16	3/16
1/4 x 2	any	1/4
1/4 x 2	1/4	1/4
1/4 x 2⅞	1/4	11
5/16 x 1	3/8	5/16
5/16 x 2	any	5/16
3/8 x 3/4	1/8	12
3/8 x 3/4	5/16	14
3/8 x 3/4	any	3/8
3/8 x 1¼	5/16	1/4
3/8 x 1¼	3/8	11
3/8 x 1½	5/8	1/4
3/8 x 2¼	3/8	3/8
3/8 x 3¼	any	3/8
3/8 x 5½	any	3/8
3/8 x 12	any	3/8
1/2 x 1	any	3/8
1/2 x 1	5/16	5/16
1/2 x 2	1/2	3/8
1/2 x 2½	any	1/2
1/2 x 3	1/2	3/8
1/2 x 3	any	3/8
1/2 x 3¼	any	1/2
1/2 x 4¼	any	1/2
9/16 x 1½	any	5/16
5/8 x 2	5/8	5/16
5/8 x 2¼	5/8	3/16
5/8 x 2¾	any	1/2
5/8 x 3	any	1/2
5/8 x 4	any	1/2
5/8 x 6¼	any	1/2
3/4 x 1	any	1/2
3/4 x 1¼	any	1/2
3/4 x 1¼	3/8	1/4
3/4 x 1½	1/2	1/2
3/4 x 2⅛	any	1/2
3/4 x 3	any	5/8
3/4 x 5	any	1/2
3/4 x 6	any	1/2
13/16 x 1 7/16	5/16	3/8
7/8 x 1¾	any	5/8
7/8 x 3	any	5/8
7/8 x 4	any	5/8
1 x 1½	any	5/8
1 x 2	any	5/8
1 x 2	3/8	3/8
1 x 3	any	5/8
1 x 4	any	5/8
1 x 12	any	16
1⅛ x 2¼	any	5/8
1⅛ x 3	any	3/8
1 3/16 x 3	any	5/8
1¼ x 2	any	5/8
1¼ x 2¼	any	5/8
1¼ x 2½	any	5/8
1¼ x 3	any	5/8
1¼ x 4	any	5/8
1 5/16 x 1 7/16	any	5/8
1½ x 1¾	any	5/8
1½ x 2	any	5/8
1½ x 2¼	any	5/8
1½ x 2½	any	5/8
1½ x 3	any	5/8
1½ x 11¾	any	1/16
1⅝ x 2	any	5/8
1⅝ x 3	any	5/8
1¾ x 2½	any	5/8
1¾ x 3	any	5/8
1¾ x 3½	any	5/8
2 x 2⅛	any	5/8
2 x 2⅜	any	5/8
2 x 2½	any	5/8
2 x 3	any	5/8
2 x 4	any	5/8
2¼ x 4½	any	5/8
2 13/32 x 2 25/32	any	5/8
2½ x 3	any	5/8
2½ x 5	any	5/8
2¾ x 4¼	any	5/8
2¾ x 5½	any	5/8
4 9/16 x 5	any	5/8



End Stagger

Size	End Bar	Side Bar	Max. Gauge
.012 x .469	7/64	any	30
.0135 x 1/2	5/64	any	30
.018 x 1/2	5/64	any	25
.027 x 1/2	5/64	any	20
1/32 x 1/2	3/16	any	20
1/30 x 1/2	3/16	any	20
.035 x 1/2	5/64	any	20
1/25 x 1/2	3/16	any	20
.049 x 1/2	1/8	any	18
1/16 x 1 3/8	any	any	14
1/16 x 1 1/4	3/16	1/16	16
1/16 x 1 1/2	1/8	1/16	16
5/64 x 1/2	7/64	any	16
3/32 x 3/4	3/32	3/32	14
3/32 x 3/4	1/8	3/32	14
3/32 x 1 1/4	3/16	3/32	14
7/64 x 3/4	3/16	3/32	12
1/8 x 1/4	3/32	1/8	12
1/8 x 1/2	3/16	1/8	11
1/8 x 3/4	1/8	1/8	11
1/8 x 3/4	3/16	3/32	14
1/8 x 1	3/16	1/8	11
1/8 x 1 1/2	1/4	1/8	11
1/8 x 2 1/2	1/8	1/8	11
1/8 x 4	any	any	11
5/32 x 3/4	1/8	1/8	10
5/32 x 1 1/2	5/32	1/8	10
11/64 x 3/4	5/32	11/64	10
11/64 x 1	7/32	11/64	12
3/16 x 5/16	3/32	3/16	8
3/16 x 9/16	5/32	3/16	8
3/16 x 3/4	5/32	3/16	8
3/16 x 1	3/16	3/16	10
3/16 x 1 1/4	3/16	3/16	8
3/16 x 1 1/2	3/16	3/16	3/16
3/16 x 3 1/4	any	any	1/4
3/16 x 4	1/4	3/16	3/16
3/16 x 4	any	any	1/4
3/16 x 7	any	any	1/4
7/32 x 3/4	1/8	7/32	6
7/32 x 1 1/2	7/32	7/32	6
1/4 x 1/2	1/4	1/4	1/4
1/4 x 3/4	3/16	3/16	14
1/4 x 3/4	1/4	1/8	6
1/4 x 3/4	any	3/16	16
1/4 x 1	1/4	1/4	1/4
1/4 x 1	any	any	3/8
1/4 x 1 1/4	1/4	3/16	10
1/4 x 1 1/4	any	any	1/4
1/4 x 1 1/2	1/4	1/4	1/4
1/4 x 2	any	any	1/4
1/4 x 3	9/32	1/4	16
1/4 x 3 1/4	any	any	1/4
1/4 x 4	3/16	1/4	1/4
5/16 x 1/2	1/4	5/16	1/4
5/16 x 1	1/4	5/16	1/4
5/16 x 1 1/2	5/16	5/16	5/16
5/16 x 2	any	any	5/16
5/16 x 2 1/2	7/16	7/16	5/16
11/32 x 1 1/2	1/4	9/32	5/16
3/8 x 1/2	3/16	7/32	1/4
3/8 x 3/4	1/4	1/4	3/16
3/8 x 3/4	any	any	3/8
3/8 x 1	9/32	1/4	1/4
3/8 x 1 1/8	5/16	3/8	5/16
3/8 x 1 1/4	1/4	1/4	1/4
3/8 x 1 1/2	1/4	1/4	3/16
3/8 x 2	3/8	3/8	3/8
3/8 x 3 1/4	any	any	1/2
3/8 x 5 1/2	any	any	1/2
3/8 x 12	any	any	3/8
7/16 x 15/16	3/16	1/4	3/16
7/16 x 1 3/8	3/16	3/16	1/4
7/16 x 1 1/2	3/8	7/16	3/8
1/2 x 5/8	1/4	1/4	1/4
1/2 x 3/4	1/4	1/4	1/4
1/2 x 1	1/4	1/4	1/4
1/2 x 1	any	any	1/2
1/2 x 1 1/4	1/4	1/4	1/4
1/2 x 1 1/2	3/8	3/8	5/16
1/2 x 1 1/2	7/32	1/4	1/4
1/2 x 1 1/2	3/8	7/16	5/16
1/2 x 1 1/2	any	any	5/16
1/2 x 2	5/16	1/4	5/16
1/2 x 2	any	any	1/2
1/2 x 2 1/2	any	any	1/2
1/2 x 3	3/8	3/8	1/4
1/2 x 3	any	any	1/2
1/2 x 3 1/4	any	any	1/2
1/2 x 4 1/4	any	any	1/2
9/16 x 1	9/32	1/4	1/4
9/16 x 1	5/16	5/16	3/16
9/16 x 1 1/2	1 1/8	3/4	1/2
9/16 x 1 1/2	any	any	1/2
5/8 x 3/4	3/8	3/8	1/4
5/8 x 1 1/4	7/16	3/8	5/16

End Stagger—Continued

Size	End Bar	Side Bar	Max. Gauge
5/8 x 1 1/2	3/8	3/8	3/8
5/8 x 1 3/4	5/16	5/16	5/16
5/8 x 2	any	any	5/16
5/8 x 2 1/4	5/16	5/8	5/16
5/8 x 2 1/4	3/8	3/8	5/16
5/8 x 2 3/4	any	any	1/2
5/8 x 3	any	any	1/2
5/8 x 4	any	any	1/2
11/16 x 1 1/4	3/8	5/16	1/4
11/16 x 1 1/2	3/8	3/8	1/4
5/8 x 6 1/4	any	any	1/2
3/4 x 1	any	any	1/2
3/4 x 1	13/32	3/8	3/8
3/4 x 1	1/4	3/4	1/2
3/4 x 1 1/4	3/8	3/8	1/2
3/4 x 1 1/2	1/2	3/8	1/2
3/4 x 2	3/8	3/8	3/8
3/4 x 2 1/4	5/8	1/2	1/4
3/4 x 3	any	any	5/8
3/4 x 5	any	any	5/8
3/4 x 6	any	any	5/8
13/16 x 1 1/2	3/8	3/8	14
13/16 x 3	2 3/32	13/16	3/8
7/8 x 1 1/4	3/8	3/8	3/8
7/8 x 1 1/2	7/16	7/16	3/8
7/8 x 1 3/4	3/8	3/8	3/8
7/8 x 1 3/4	any	any	5/8
7/8 x 3	any	any	5/8
7/8 x 4	any	any	5/8
1 x 1 1/2	1/2	1/2	5/16
1 x 1 1/2	any	any	5/8
1 x 2	7/16	3/8	1/2
1 x 2	1/2	1/2	3/8
1 x 2	any	any	5/8
1 x 3	any	any	5/8
1 x 4	any	any	5/8
1 x 12	any	any	16
1 1/8 x 2 1/4	9/16	9/16	5/16
1 1/8 x 2 1/4	any	any	5/8

Size	End Bar	Side Bar	Max. Gauge
1 1/8 x 3	5/8	1/2	1/2
1 1/8 x 3	any	any	5/8
1 1/8 x 5 1/2	any	any	5/8
1 3/16 x 3	any	any	5/8
1 1/4 x 2	1/2	1/2	3/8
1 1/4 x 2	any	any	5/8
1 1/4 x 2 1/4	any	any	5/8
1 1/4 x 2 1/2	1/2	1/2	3/8
1 1/4 x 2 1/2	any	any	5/8
1 1/4 x 3	11/16	1/2	1/2
1 1/4 x 3	any	any	5/8
1 1/4 x 4	any	any	5/8
1 3/8 x 2	5/8	5/8	1/2
1 3/8 x 2 3/4	5/8	5/8	1/2
1 1/2 x 1 3/4	any	any	5/8
1 1/2 x 2	any	any	1/2
1 1/2 x 2 1/4	any	any	5/8
1 1/2 x 2 1/2	any	any	5/8
1 1/2 x 3	3/4	5/8	1/2
1 1/2 x 3	any	any	5/8
1 1/2 x 11 3/4	any	any	16
1 5/8 x 2	any	any	5/8
1 5/8 x 3	5/8	1/2	1/2
1 5/8 x 3	any	any	5/8
1 3/4 x 2 1/2	any	any	5/8
1 3/4 x 3	any	any	5/8
1 3/4 x 3 1/2	any	any	5/8
2 x 2 3/8	any	any	5/8
2 x 2 1/2	any	any	5/8
2 x 3	any	any	5/8
2 x 4	any	any	5/8
2 1/4 x 4 1/2	any	any	5/8
2 5/16 x 2 3/4	any	any	5/8
2 13/16 x 2 25/32	any	any	5/8
2 1/2 x 3	any	any	5/8
2 1/2 x 5	any	any	5/8
2 3/4 x 4 1/4	any	any	5/8
2 3/4 x 5 1/2	any	any	5/8
4 9/16 x 5	any	any	1/2

Straight Both Ways

Size	End Bar	Side Bar	Max. Gauge
.012 x .469	7/64	any	30
.0135 x 1/2	5/64	any	30
.018 x 1/2	5/64	any	30
.018 x 1/2	any	.107	25
.020 x 1/2	any	.105	25
.022 x 1/2	any	.103	25
.024 x 1/2	any	.101	25
.027 x 1/2	any	.098	20
.029 x 1/2	any	.096	20
1/32 x 1/2	3/16	any	20
1/30 x 1/2	3/16	any	20
1/30 x 1/2	any	.1229	20
.035 x 1/2	any	.1212	20
1/25 x 1/2	3/16	any	20
1/25 x 1/2	any	.1162	20
.042 x 1/2	any	.1142	18

Straight Both Ways—Continued

Size	End Bar	Side Bar	Max. Gauge
3/64 x 1/2	1/8	any	18
3/64 x 1 1/4	any	21/128	18
.049 x 1/2	any	.107	16
.058 x 1/2	any	.1295	16
1/16 x 1/2	any	1/8	16
1/16 x 1/2	5/32	any	16
1/16 x 3/4	any	1/8	16
1/16 x 1	any	3/16	16
1/16 x 1	3/16	any	16
1/16 x 1 1/4	3/16	6/64	16
1/16 x 1 3/8	any	any	14
1/16 x 1 1/2	1/8	any	16
1/14 x 1 3/8	any	.1786	16
5/64 x 1/2	any	7/64	16
5/64 x 1/2	any	9/64	14
5/64 x 1/2	7/64	any	16
3/32 x 1/2	any	3/32	14
3/32 x 1/2	any	1/8	14
3/32 x 3/4	3/32	any	14
3/32 x 3/4	3/16	any	14
3/32 x 1 1/4	3/16	any	14
7/64 x 1/2	any	1/8	12
7/64 x 3/4	3/16	any	12
1/8 x 1/4	3/32	any	12
1/8 x 1/2	any	1/8	11
1/8 x 1/2	3/16	any	11
1/8 x 3/4	1/8	any	11
1/8 x 3/4	3/16	any	14
1/8 x 1	3/16	any	11
1/8 x 1 1/2	1/4	any	11
1/8 x 2 1/2	1/8	any	11
1/8 x 4	any	any	11
5/32 x 5/8	any	7/64	12
5/32 x 3/4	1/8	any	11
5/32 x 1 1/2	5/32	any	10
11/64 x 3/4	5/32	any	10
11/64 x 1	7/32	any	12
3/16 x 5/16	5/32	any	10
3/16 x 1/2	3/16	any	16
3/16 x 3/4	any	1/8	8
3/16 x 3/4	1/8	any	8
3/16 x 1	1/8	any	8
3/16 x 1	any	3/16	3/16
3/16 x 1 1/4	5/32	any	3/16
3/16 x 1 1/4	any	1/8	8
3/16 x 1 1/2	any	1/8	8
3/16 x 1 1/2	any	3/16	3/16
3/16 x 1 1/2	3/16	any	3/16
3/16 x 1 1/2	1/2	3/8	1/4
3/16 x 3 1/4	any	any	3/16

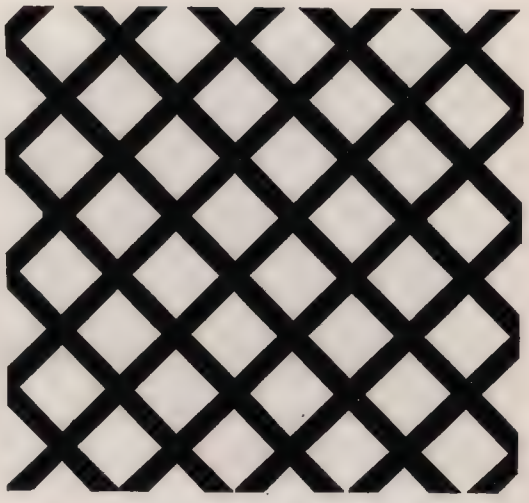
Size	End Bar	Side Bar	Max. Gauge
3/16 x 4	any	any	3/16
3/16 x 7	any	any	1/4
7/32 x 5/8	any	1/8	8
7/32 x 3/4	.150	any	11
7/32 x 1 1/2	3/16	any	6
1/4 x 1/2	3/16	any	1/4
1/4 x 1/2	any	3/16	3/16
1/4 x 3/4	any	1/4	10
1/4 x 3/4	1/8	any	14
1/4 x 3/4	7/32	any	6
1/4 x 1	any	5/16	1/4
1/4 x 1	any	any	3/8
1/4 x 1 1/4	any	1/8	8
1/4 x 1 1/4	any	3/16	8
1/4 x 1 1/4	any	any	1/4
1/4 x 1 1/4	7/32	any	1/8
1/4 x 1 1/2	3/16	any	1/4
1/4 x 1 1/2	any	1/8	11
1/4 x 1 1/2	any	3/16	1/4
1/4 x 2	any	3/16	3/16
1/4 x 2	any	1/4	11
1/4 x 2	any	any	1/4
1/4 x 3	1/4	any	16
1/4 x 3 1/4	any	any	1/4
1/4 x 4	any	any	1/4
5/16 x 1/2	5/32	any	8
5/16 x 1	any	3/8	1/4
5/16 x 1	1/4	any	1/4
5/16 x 1 1/2	1/4	any	1/4
5/16 x 2	any	any	5/16
5/16 x 2 1/2	7/16	any	1/4
11/32 x 1 1/2	3/16	any	1/4
3/8 x 1/2	1/8	any	3/16
3/8 x 3/4	any	any	3/8
3/8 x 3/4	any	5/16	10
3/8 x 3/4	7/32	any	3/16
3/8 x 3/4	any	1/8	14
3/8 x 1	7/32	any	1/4
3/8 x 1 1/8	3/16	any	8
3/8 x 1 1/4	1/4	5/16	1/4
3/8 x 1 1/4	3/8	any	1/4
3/8 x 1 1/4	3/16	any	1/4
3/8 x 1 1/2	3/16	any	10
3/8 x 2	any	any	3/8
3/8 x 2 1/4	3/8	any	3/8
3/8 x 3 1/4	any	any	1/2
3/8 x 5 1/2	any	any	3/8
3/8 x 12	any	any	5/16
7/16 x 15/16	1/8	any	3/16
7/16 x 1 3/8	1/8	any	1/8

Straight Both Ways—Continued

Size	End Bar	Side Bar	Max. Gauge
7/16 x 1 1/2	1/4	any	3/8
1/2 x 5/8	1/4	any	1/4
1/2 x 3/4	5/32	any	3/16
1/2 x 1	any	any	1/2
1/2 x 1	any	11/32	1/4
1/2 x 1	3/16	any	1/4
1/2 x 1 1/4	3/16	any	1/4
1/2 x 1 1/2	1/4	any	1/4
1/2 x 1 1/2	3/16	any	1/4
1/2 x 1 1/2	any	any	3/16
1/2 x 2	1/4	any	5/16
1/2 x 2	any	any	1/2
1/2 x 2	1/2	1/2	1/2
1/2 x 2 1/2	any	any	1/2
1/2 x 3	any	any	1/2
1/2 x 3 1/4	any	any	1/2
1/2 x 4 1/4	any	any	1/2
1/2 x 8	any	any	1/2
9/16 x 1	3/16	any	1/4
9/16 x 1	5/16	5/16	6
9/16 x 1 1/2	any	any	5/16
9/16 x 1 1/2	1	any	1/2
5/8 x 3/4	1/4	any	1/4
5/8 x 1 1/4	5/16	any	5/16
5/8 x 1 1/2	1/4	any	6
5/8 x 1 3/4	3/16	any	1/4
5/8 x 2	any	any	5/16
5/8 x 2 1/4	any	5/8	5/16
5/8 x 2 1/4	1/4	any	5/16
5/8 x 3	any	any	1/2
5/8 x 4	any	any	5/8
5/8 x 6 1/4	any	any	5/8
11/16 x 1 1/4	3/8	any	1/4
3/4 x 1	any	any	1/2
3/4 x 1	1/4	any	5/16
3/4 x 1 1/4	any	any	1/2
3/4 x 1 1/4	any	3/8	1/4
3/4 x 1 1/4	1/4	any	1/4
3/4 x 1 1/4	21/64	any	3/8
3/4 x 1 1/2	3/8	any	11
3/4 x 1 1/2	3/8	any	3/8
3/4 x 1 1/2	5/8	any	5/8
3/4 x 2	any	1/2	1/2
3/4 x 2	7/32	any	1/4
3/4 x 2 1/8	any	any	1/2
3/4 x 2 1/4	any	1/2	3/8
3/4 x 3	any	any	5/8
3/4 x 5	any	any	1/2
3/4 x 6	any	any	1/2
13/16 x 1 7/16	any	5/16	1/4
13/16 x 1 1/2	7/32	any	14

Size	End Bar	Side Bar	Max. Gauge
13/16 x 3	2	any	1/2
7/8 x 1 1/4	1/4	any	1/4
7/8 x 1 1/2	1/4	any	1/4
7/8 x 1 3/4	1/4	any	1/4
7/8 x 1 3/4	any	any	5/8
7/8 x 3	any	any	5/8
7/8 x 4	any	any	5/8
1 x 1 1/2	5/16	any	3/8
1 x 1 1/2	11/16	5/8	5/8
1 x 1 1/2	any	any	5/8
1 x 2	5/16	any	3/8
1 x 2	3/8	3/8	
1 x 2	any	any	1/2
1 x 3	any	any	5/8
1 x 4	any	any	5/8
1 x 12	any	any	16
1 1/8 x 2 1/4	5/16	any	3/8
1 1/8 x 2 1/4	any	any	5/8
1 1/8 x 3	any	any	5/8
1 1/8 x 5 1/2	any	any	5/8
1 3/16 x 3	any	any	5/8
1 1/4 x 2	any	any	5/8
1 1/4 x 2	1/4	any	1/4
1 1/4 x 2 1/4	any	any	5/8
1 1/4 x 2 1/2	any	any	5/8
1 1/4 x 2 1/2	1/4	any	1/4
1 1/4 x 3	any	any	5/8
1 1/4 x 4	any	any	5/8
1 5/16 x 1 7/16	3/8	5/16	5/16
1 3/8 x 2	3/8	any	3/8
1 3/8 x 2 3/4	any	any	5/8
1 1/2 x 1 3/4	any	any	5/8
1 1/2 x 2	any	any	5/8
1 1/2 x 2 1/4	any	any	5/8
1 1/2 x 2 1/2	any	any	5/8
1 1/2 x 3	any	any	5/8
1 1/2 x 11 3/4	any	any	16
1 5/8 x 2	any	any	5/8
1 5/8 x 3	any	any	5/8
1 3/4 x 2 1/2	any	any	5/8
1 3/4 x 3	any	any	5/8
1 3/4 x 3 1/2	any	any	5/8
2 x 2 1/2	any	any	5/8
2 x 3	any	any	5/8
2 x 4	any	any	5/8
2 1/4 x 4 1/2	any	any	5/8
2 1/2 x 3	any	any	5/8
2 1/2 x 5	any	any	5/8
2 3/4 x 5 1/2	any	any	5/8
4 9/16 x 5	any	any	3/8

Herringbone Perforations



Diamond Shape Perforations

Diamond and Herringbone Perforations

Below we list the standard sizes of diamond and herringbone perforations we can furnish with the maximum gauge of material according to United States Standard Gauge. We can punch one or two gauges heavier in Brass, Bronze and Copper.

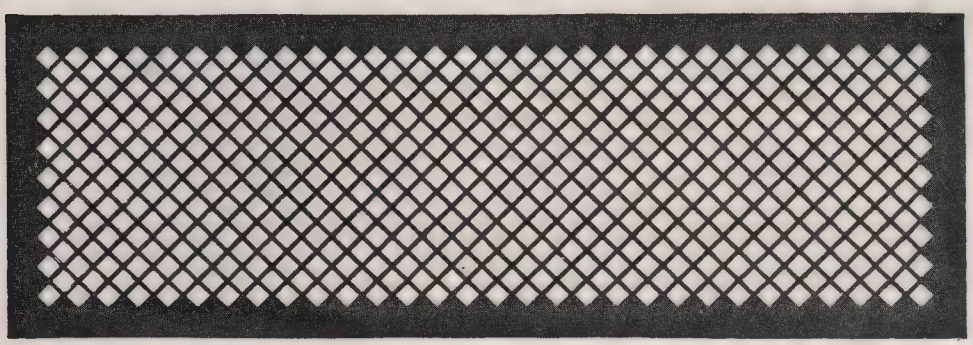
If you do not find the size you desire in the following table, communicate with us as we are constantly adding new sizes as sufficient demand arises or it may be by some special arrangement of tools we can meet your requirements.

Unusual sizes can be furnished by special agreement.

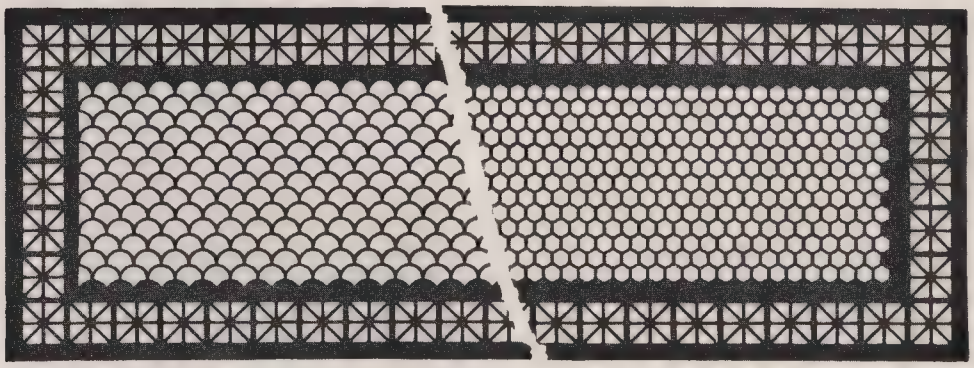
HERRINGBONE PERFORATIONS		
Size	Bar	Max. Gauge
3/32 x 3/4	3/16	14
5/8 x 1 1/4	3/4	3/8
5/8 x 2 1/8	3/8	3/8
3/4 x 2 1/4	1/2	3/8
7/8 x 2 1/4	1/2	3/8
1 1/4 x 3 5/8	1 1/4	3/8
1/2 x 2	5/8	1/2

DIAMOND SHAPE PERFORATIONS			
Size	C to C perf.	Bar	Max. Gauge
1/2	7/8	3/8	1/4
1/2	1 1/16	9/16	1/4
5/8	13/16	3/8	1/16
5/8	any	any	1/2

DIAMOND SHAPE PERFORATIONS—*Continued*			
Size	C to C perf.	Bar	Max. Gauge
5/8	1 1/4	1/4	3/8
5/8	7/8	1/4	1/16
9/16	any	any	1/2
3/4	any	any	1/2
7/8	any	any	1/2
1	any	any	1/2
1 1/8	any	any	1/2
1 1/4	any	any	5/8
1 5/16	any	any	5/8
1 1/2	any	any	5/8
1 3/4	any	any	3/4
2	any	any	3/4
2 1/4	any	any	3/4
2 3/8	any	any	3/4
2 1/2	any	any	3/4



Diamond



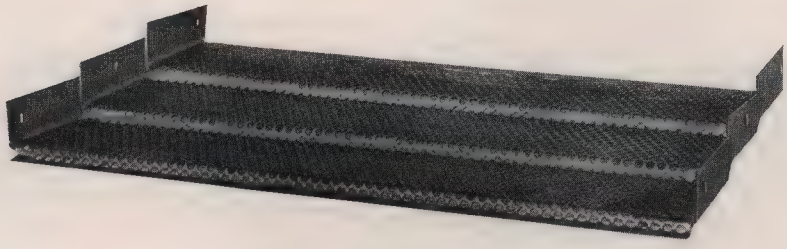
Grecian and Shell *Grecian and Hexagon*

Grilles

WE make a complete line of Grilles to be placed in buildings, subway stations, elevators, and other places where ventilation and light combined with artistic effect are desired.

Many standard designs are available or where desired, we will co-operate with our customers in furnishing Grilles of their own design in order that they may obtain a Grille that harmonizes better with their building or interior decoration.

A new and complete catalogue covering Grilles is available and will be sent on request.



Perisertread Shaking Screens

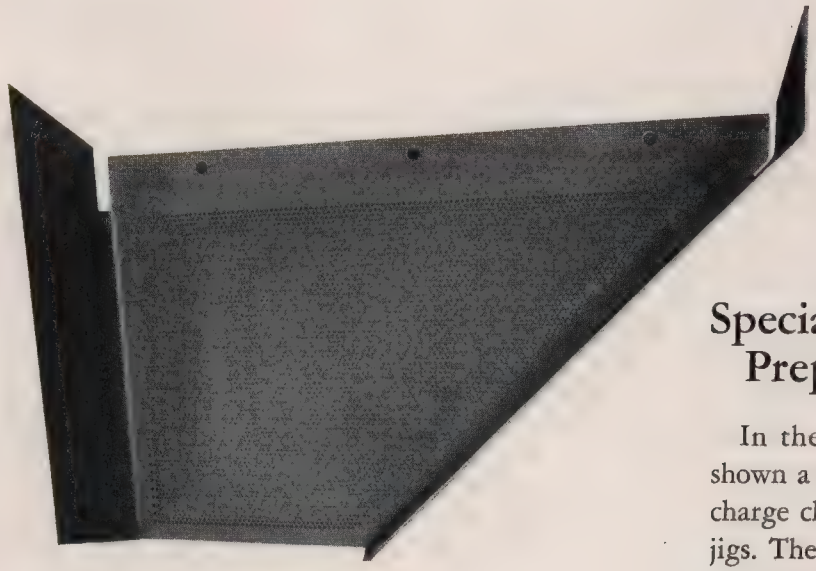
(for coal)

The perforated riser, in forming a backing for the material passing over the screen, loosens it up, thus allowing the undersize to pass through more readily.

It is particularly efficient in handling the smaller sizes of coal—from chestnut down. Capacities have been greatly increased with these screens.

The risers also act as stiffeners where greater rigidity is needed.

This screen can be furnished in either steel or bronze.



Special Screens for the Preparation of Coal

In the accompanying picture is shown a combination screen and discharge chute for use with anthracite jigs. The discharge may be arranged for right or left hand. The sides may be omitted, if desired. Where acid waters are met with, manganese bronze is recommended.

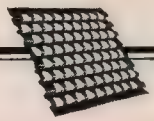
Flanged Lip Screens

Flanged Lip Screens, incidentally developed and perfected by the Hendrick Manufacturing Company, have been used for a great many years in the preparation of coal and coke. Within recent years their use has extended to stone, gravel, ores and many other materials. This type of screen is being successfully used on shaking, vibrating, gravity screens and on loading chutes.

The perforations in this screen are tapered, being smaller at the top than at the bottom. Holes are self-cleaning. The tapering of the perforations prevents the holes from blinding and at the same time cause less breakage than any other type of screen. The steps in the screen quickly roll and tumble the material, giving a better separation. On shaking screens, the steps keep pushing the material ahead. They also stiffen the plate and thus permit the use of less expensive, lighter gauge metal. It can readily be seen that on screens of this type much greater tonnages can be handled than with round, square or rectangular holes.

For a number of years Flanged Lip Screens were made with only the long perforations. While these long perforations have been very successful and in many cases meet the requirements, the tendency of late years has been towards shorter slots. The latest development of the lip screen has been a very short slot made in such sizes as to approximate round hole perforations. These short slot screens are in great demand, for the reason that they have all the advantages of the lip screen, and at the same time give a screened product that is of practically the same definite size as though screened through a round hole.

As shown in the tables below we have listed our lip screens in three ways. Those having slots from 7″ to 12″ long, those having slots from 4″ to 6″ long and the short slots or round hole equivalents. With this great variety of sizes you will find screens to meet any requirements. For sizes not appearing in these tables get in touch with us as we are equipped to make any size required at a slightly additional charge.



Flanged Lip Screen Sizes

SLOTS 4 INCHES TO 6 INCHES LONG

5/64 x 3/32 x 4 1/8 x 5/16 x 4 3/16 x 5/16 x 4 1/2 x 5/8 x 4½	3/8 x 1/2 x 6 3/8 x 5/8 x 6 1/2 x 5/8 x 6 1/2 x 7/8 x 6	7/8 x 1⅛ x 6 1 x 1¼ x 6 1⅛ x 1⅜ x 6 1¼ x 1½ x 6	2 x 3 x 6 2½ x 3 x 6 2¾ x 3½ x 6 3 x 3½ x 6
¾ x 1 x 4½ 1¾ x 2 x 4½ ½ x ¾ x 5¾ ¼ x ⅜ x 6	⅝ x ¾ x 6 ⅝ x ⅞ x 6 ¾ x 1 x 6	1⅜ x 1⅝ x 6 1½ x 1¾ x 6 2 x 2½ x 6	3½ x 4 x 6 4 x 4½ x 6 4½ x 5 x 6

Note: The sizes above are the sizes before flanging. The size after flanging will vary with the depth of step. Standard step 1¼″ deep.

SLOTS 7 INCHES TO 12 INCHES LONG

½ x ¾ x 7 ⅞ x 1 x 8 1 x 1¾ x 9 ¼ x ½ x 10	2¼ x 2½ x 10 2¾ x 3 x 10 3½ x 4 x 10 4½ x 5 x 10	¼ x ½ x 12 ⅜ x ½ x 12 ⅜ x ⅝ x 12 ½ x ⅝ x 12	⅞ x 1⅛ x 12 1 x 1¼ x 12 1 x 1⅜ x 12 1⅛ x 1⅜ x 12
½ x ⅝ x 10 ½ x ¾ x 10 ¾ x 1 x 10 1 x 1¼ x 10	3 x 3½ x 11 1⅞ x 2⅛ x 11½ 1/16 x ⅛ x 12 ⅛ x 3/16 x 12	½ x ¾ x 12 ⅝ x ¾ x 12 ⅝ x ⅞ x 12 ½ x 1 x 12	1¼ x 1½ x 12 1⅜ x 1⅝ x 12 1½ x 1¾ x 12 1½ x 2 x 12
1¼ x 1½ x 10 1¾ x 2 x 10 2⅛ x 2½ x 10	⅛ x ¼ x 12 3/16 x 5/16 x 12 ¼ x ⅜ x 12	¾ x 1 x 12 ¾ x 1⅛ x 12	1¾ x 2 x 12 2 x 2⅛ x 12

Note: The sizes above are the sizes before flanging. The size after flanging will vary with the depth of step. Standard step 1½″ deep.

SHORT SLOT LIP SCREENS EQUIVALENT TO ROUND HOLES

STANDARD SIZES

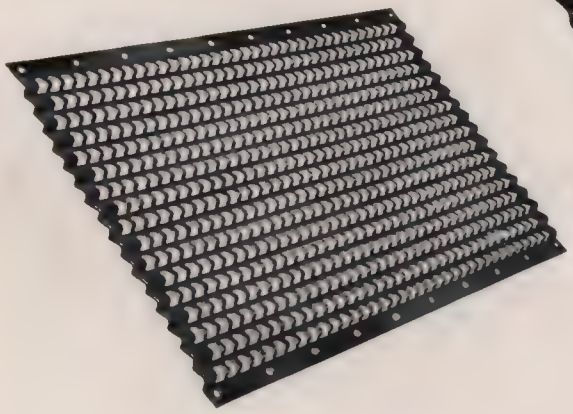
Size of Slot Inches	Round Hole Equivalent Inches
⅜ x ½ x 1½ ⅝ x ¾ x 1½ ⅞ x 1 x 1½ 1⅛ x 1¼ x 1½	½ ¾ 1 1¼
1⅜ x 1⅝ x 1½ 1⅞ x 2⅛ x 2 2⅜ x 2⅝ x 2½ 2⅞ x 3⅛ x 3	1½ 2 2½ 3
3⅜ x 3⅝ x 3½ 3¾ x 4¼ x 4 4¼ x 4¾ x 4½ 4¾ x 5¼ x 5	3½ 4 4½ 5
5½ x 6¼ x 6 6½ x 7¼ x 7 7 x 8 x 8	6 7 8

OTHER SHORT SLOT SIZES

Size of Slot Inches	Round Hole Equivalent Inches
⅝ x ¾ x 2 ⅝ x ¾ x 2½ ½ x 1⅜ x 3 1 1/16 x 1¼ x 1⅜	¾ — ⅞ ¾ — ⅞ ½ — 1½ 1¼
1½ x 1⅜ x 1⅞ 1¾ x 2 x 3 2 x 2½ x 3 3½ x 4¼ x 4	1½ — 1¾ 1¾ — 2¼ 2 — 2¾ 4
1½ x 1¾ x 3½	1½ — 2

Note: The sizes given are the finished sizes of slots. This applies to both tables of short slot lip screens.

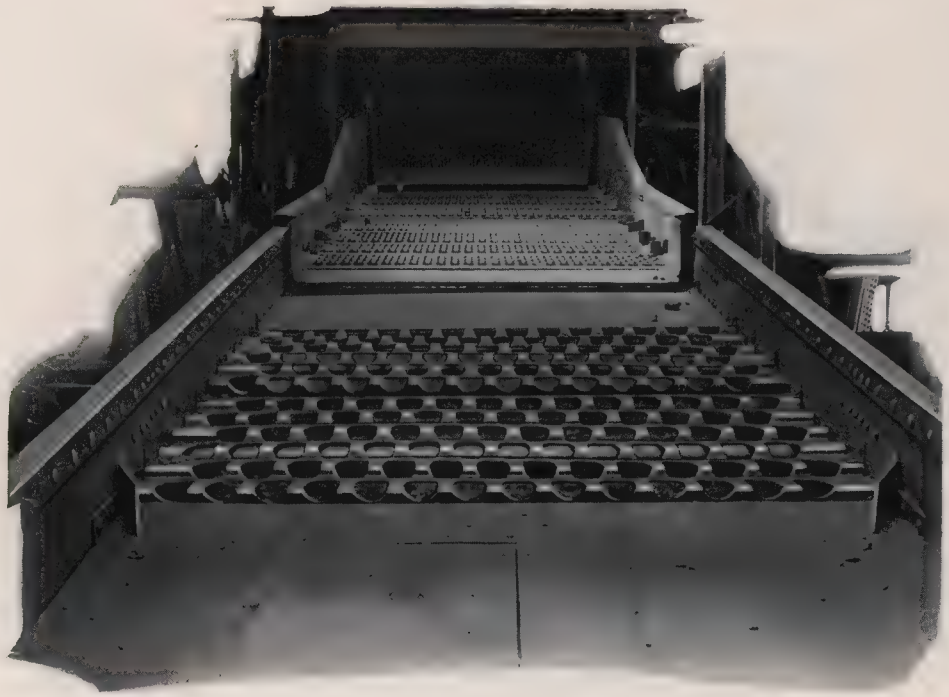
Installation of Short Slot Lip Screens in Bituminous Field



Short Slot Lip Screen

6" Slot Lip Screen

Installation of 12" Slot Lip Screen Plates



Installation of 6" Slot and Short Slot Lip Screen Plates

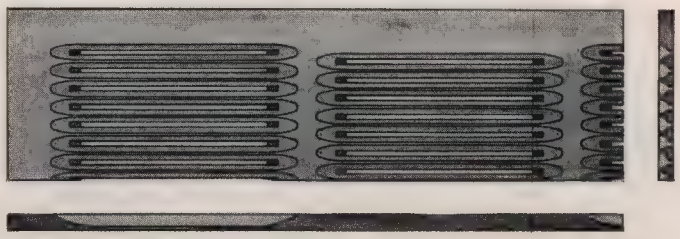
Type A

Milled Slot Screens for Sewage Disposal Plants

THIS type screen has been found very effective in connection with sewage disposal work. The length of the opening is 2″ while the width varies from 1/64″ up to 1/8″. The holes flare outward so there is no chance of blinding. This offers a distinct advantage over straight punched screens.

Hendrick Milled Slot Screens are made from bronze plate to withstand the corrosion commonly encountered in this work.

Further details will be sent to interested parties.



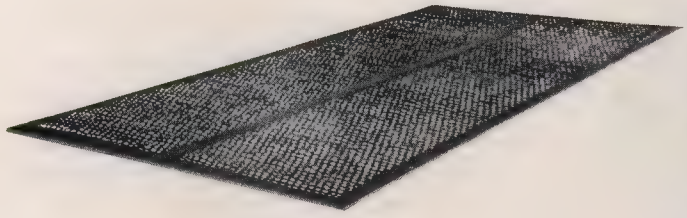
Type B

Milled Slot Screens for Anthracite and Bituminous Coal Washing Plants

TYPE B Milled Slot Screen has met with considerable success when used in the dewatering of small sizes of both anthracite and bituminous coal.

This type of screen is also used as a desanding screen in certain types of coal washing plants.

The fact that these screens are fabricated from a solid plate at least 3/16″ thick, insures long life and practically constant size of slots. A variety of widths of slots is offered to suit variable conditions.



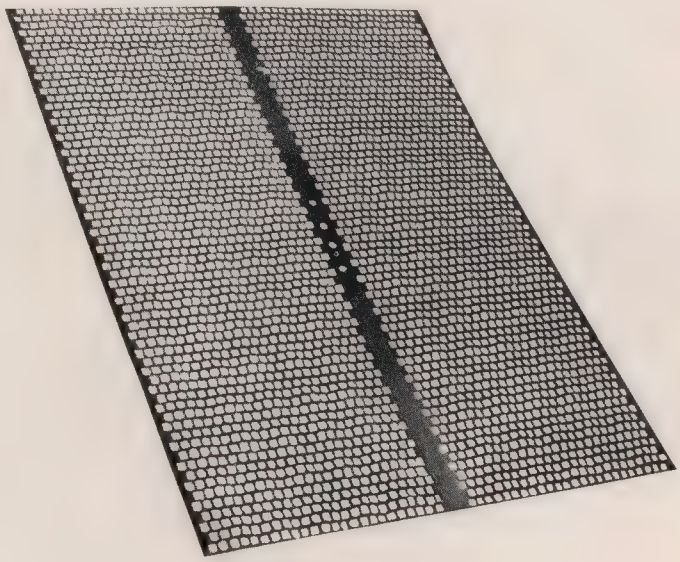
Corrugated Screen Plates

THE corrugating of screen plates, either flat or rolled sections, adds considerably to their efficiency and capacity. This corrugating puts an irregular series of peaks and valleys in the plate as shown herewith. On flat plates used on shaking, vibrating, or gravity screens the corrugations spread the material over the entire surface of the plate thus giving the material every opportunity to go through the perforations. On revolving screens the corrugations carry the material further up the sides of the screen and in so doing give a better separation. See illustration page 39. These corrugated screen plates are being used in large quantities on all types of screens.

Test Screens

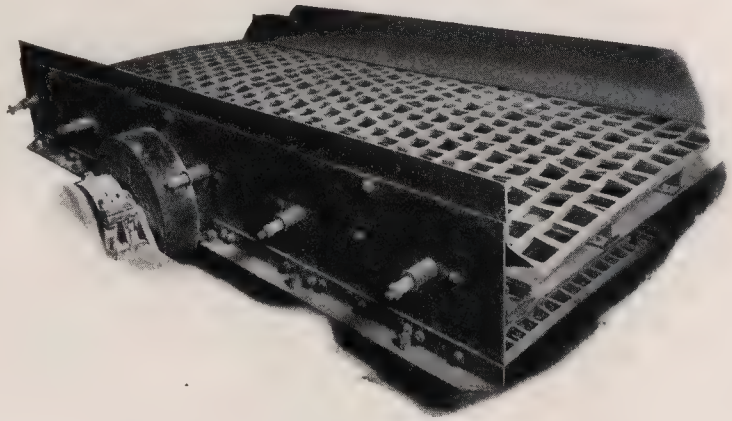
FOR those desiring a simple device for testing the various sizes of screened products, we have designed and furnish a hand testing table which is arranged to take two of our standard 16″ testing screen plates. This feature permits of testing a large quantity very quickly. Changing from one size of perforation to another is but a few moments work.

Perforated Metal on Vibrating Screens

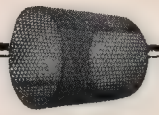


Perforated metal is very efficient on all types of vibrating screens regardless of whether the screen or the entire frame vibrates. Hendrick Perforated Metal is used very extensively for this purpose.

The corrugations on Hendrick Perforated Metal spread the material over the entire surface of the screen. The staggering of the openings assures efficient screening and the full clearance through the perforations prevents blinding. These screens can be furnished with any size or shape of perforation desired.



Perforated Metal Installation on Vibrating Screen



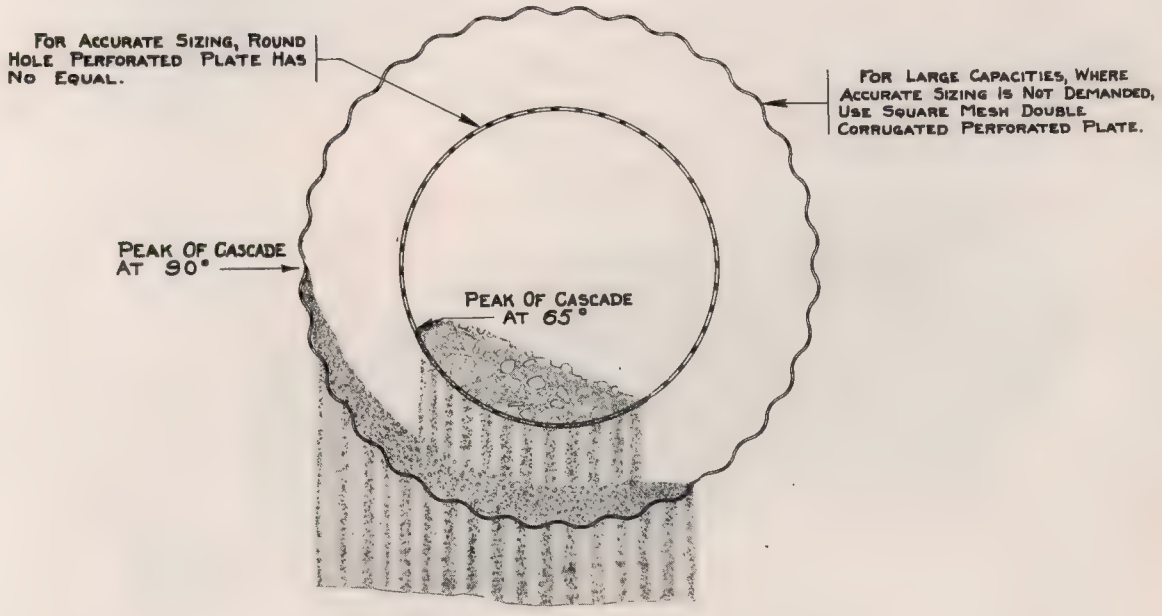
Screens for Crushed Stone and Sand and Gravel Plants

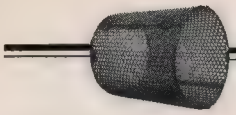
FOR this field, no attempt is made to standardize the perforated metal screens. Rather, the Hendrick service is made so broad that any style and size of screen plate can be furnished.

Perforated metal screen plate can be furnished flat or rolled to any degree of curvature. Joints can be made lap or butt with any type of fastening device desired. Also, if desired we can supply the necessary angle or tee rings for the ends of the sections with the countersunk head bolts and nuts including lock washers for fastening to equipment.

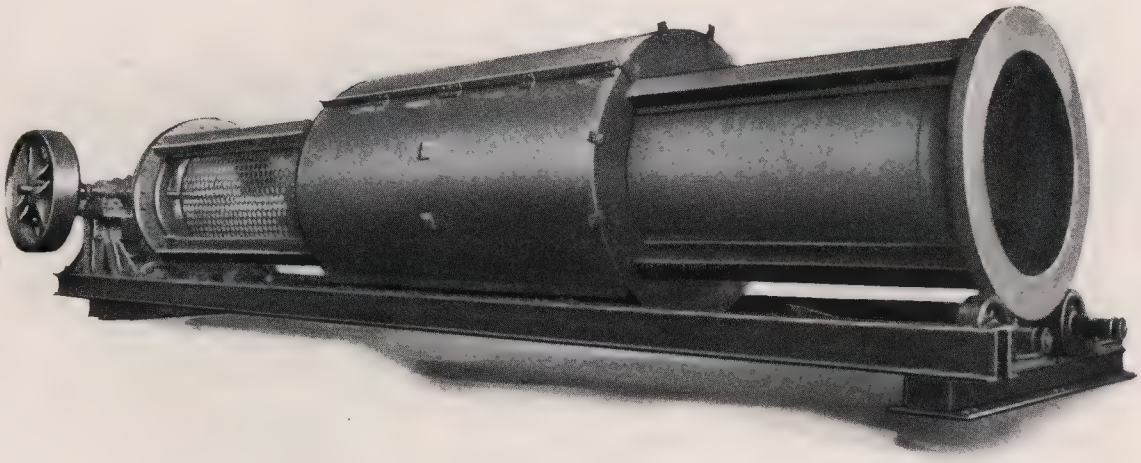
Although round hole screen plates give the most accurate sizing possible, many specifications do not require the accurate sizing given by round holes and we are furnishing a large volume of our products in square mesh and in slotted mesh. The square mesh gives larger open area than round holes. The slotted mesh also gives large open area, and in some cases a larger open area than the square mesh.

The square and slotted mesh plates are often double corrugated so that the material will be carried further up the sides of the screen producing a longer cascade than with smooth plates.





Revolving Screens—Complete

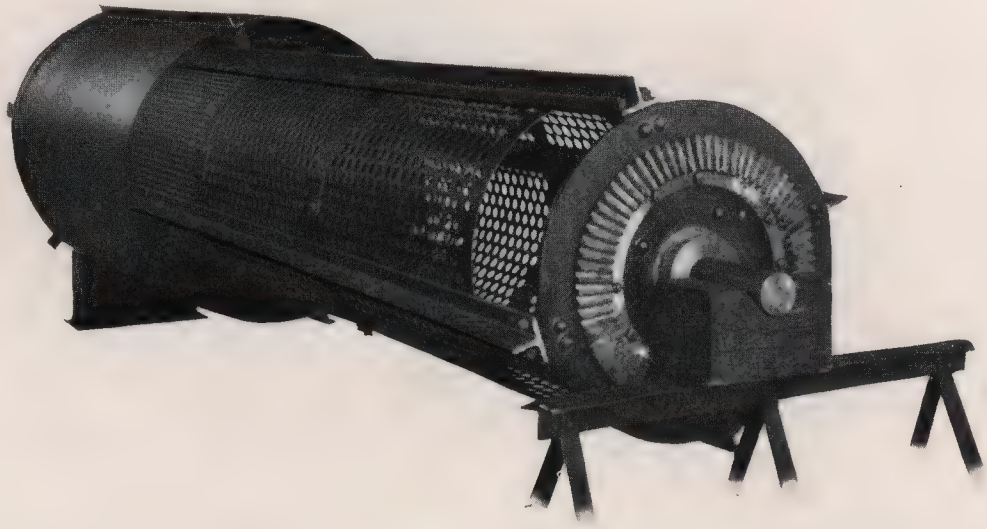


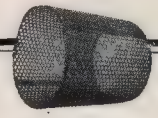
ALL revolving screens are built to specifications. We can furnish any diameter, gauge of metal, and size and shape of perforation desired.

As these screens are built complete, the shafting and internal spiders or outside rings and trunnions will be furnished.

If it is desired, these screens will be built double jacketed and with the openings varying to take out different sizes in one operation.

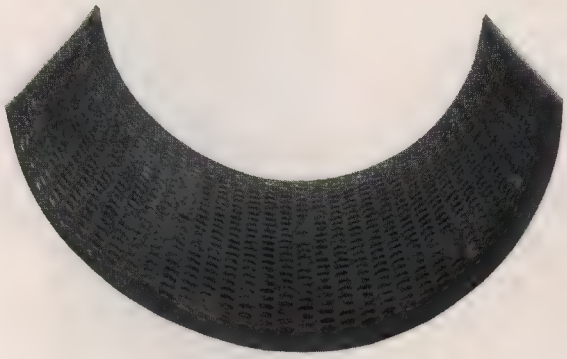
These screens will be shipped completely assembled ready for installation or will be partially or wholly knocked down in case it is not practical to install the screen as a complete unit.



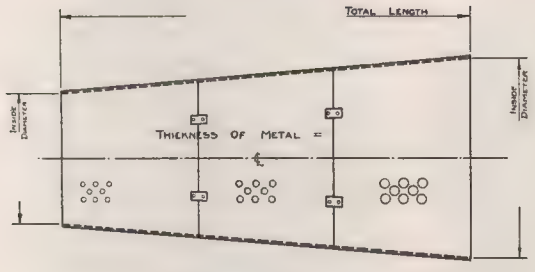


Sections and Segments for Revolving Screens

Where customers desire complete sections for their revolving screens, these will be made up of any gauge metal and any size and shape of perforation with especial emphasis on the accuracy of diameter and the placing of fastening devices.

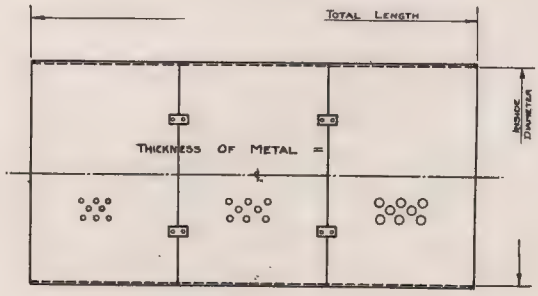


One of the features of our service on this equipment is the accuracy with which segments are rolled. Customers find it easy to install these sections because bolt holes also match up to specifications.



CONICAL SCREEN

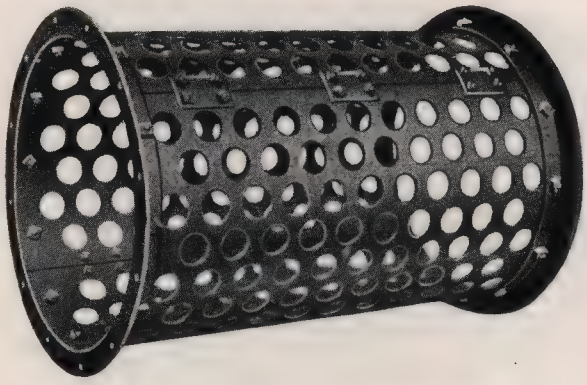
No. of Sections Required.....Gauge.....
Dia. of Screen.....Inside.....Outside.....
Length of Screen.....
No. of Plates to Round.....
Size of Perforations.....
Butt Joint, Clips and Bolts.....
Butt Straps Lengthwise .....
Butt Straps Circumferentially.....



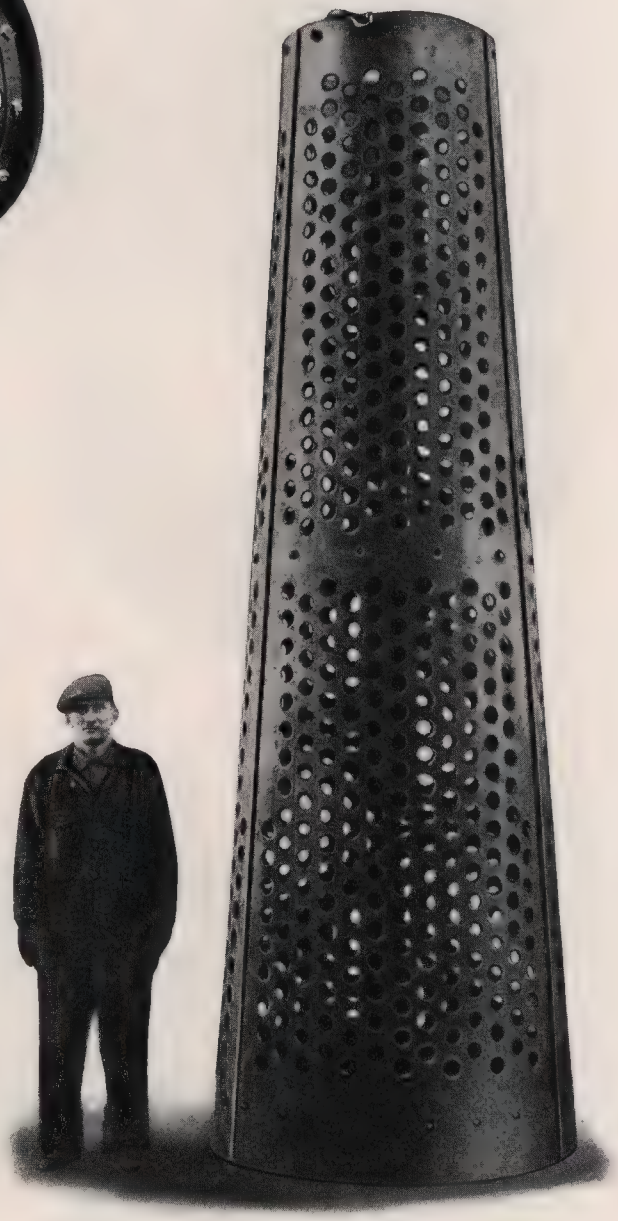
CYLINDRICAL SCREEN

No. of Sections Required.....Gauge.....
Dia. of Screen.....Inside.....Outside.....
Length of Screen.....
No. of Plates to Round.....
Size of Perforations.....
Butt Joint, Clips and Bolts.....
Butt Straps Lengthwise .....
Butt Straps Circumferentially.....

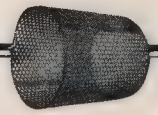
Sections and Segments for Revolving Screens



THIS style screen uses angle-iron rings for fastening into the revolving mechanism. As with the usual revolving screens, any gauge metal and size and shape of opening may be had. In addition, be sure to give outside diameter of section and size of angle-ring.



Illustrating some of the large conical screen sections we manufacture.



Screens for the Clay Industry

FOR the clay working industry, perforated metal screens are particularly well adapted. Perforations are uniform, and blank margins can be left as desired, something which is not possible with other types of screens. Perforated metal screens have long life and are easily and inexpensively replaced.

While no definite sizes of perforations or slots are recommended for this work, the following are those most commonly ordered by large users of perforated metal screens.

Before ordering perforated plate, please refer to page 7 where directions are given how to specify size and spacing of openings.

If you are not positive as to the proper gauge metal to specify, we will furnish the thickness generally used in the clay industry for whatever size and spacing of openings desired.

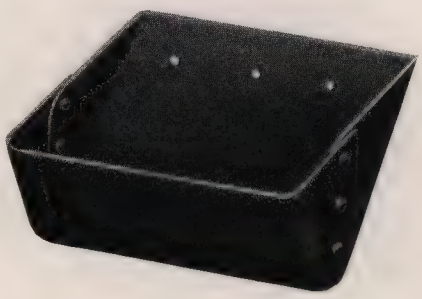
ROUND						
1/16	3/32	1/8	5/32	3/16	7/32	1/4
SLOTS						
DIAGONAL						
.042 x 1/2 .049 x 1/2		.058 x 1/2 1/16 x 1/2		3/32 x 1/2 7/64 x 1/2		1/8 x 1/2 5/32 x 1/2
END STAGGER						
.049 x 1/2 1/16 x 1/2 1/16 x 1 1/4		1/16 x 1 1/2 5/64 x 1/2 3/32 x 3/4		3/32 x 1 1/4 7/64 x 1/2 1/8 x 1/2		1/8 x 3/4 1/8 x 1 5/32 x 3/4
SIDE STAGGER OR STRAIGHT						
3/64 x 1/2		1/14 x 1 3/8		7/64 x 1/2		5/32 x 5/8

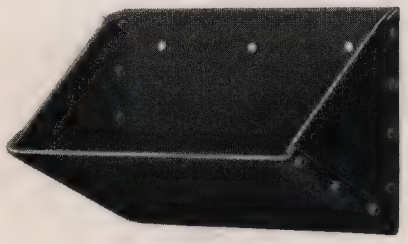
Elevator Buckets, Conveyor Troughs and Flights, Picking Tables, Loading Booms

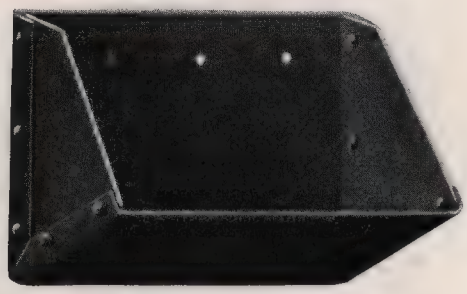
ELEVATOR Buckets are made in all sizes and shapes, and in capacity of a fraction of a cubic foot to several cubic feet. They are made to handle all kinds of materials both wet and dry. Our facilities for making these buckets are quite extensive and we can make any style or size bucket, plain or perforated, from light sheets or heavy plates to fit requirements. When ordering Elevator Buckets, give the capacity required, pitch and speed of conveyor, length of conveyor, and size and spacing of attachment holes, see page 47.

Conveyor Troughs and Flights like Elevator Buckets are of many sizes and shapes, plain flat flights, flanged flights, angle iron flights, flights with wearing strips and perforated flights are some of the different kinds. Troughs are made up to fit the shape of the flights. Pans and Scrapers are made to suit customer's requirements.

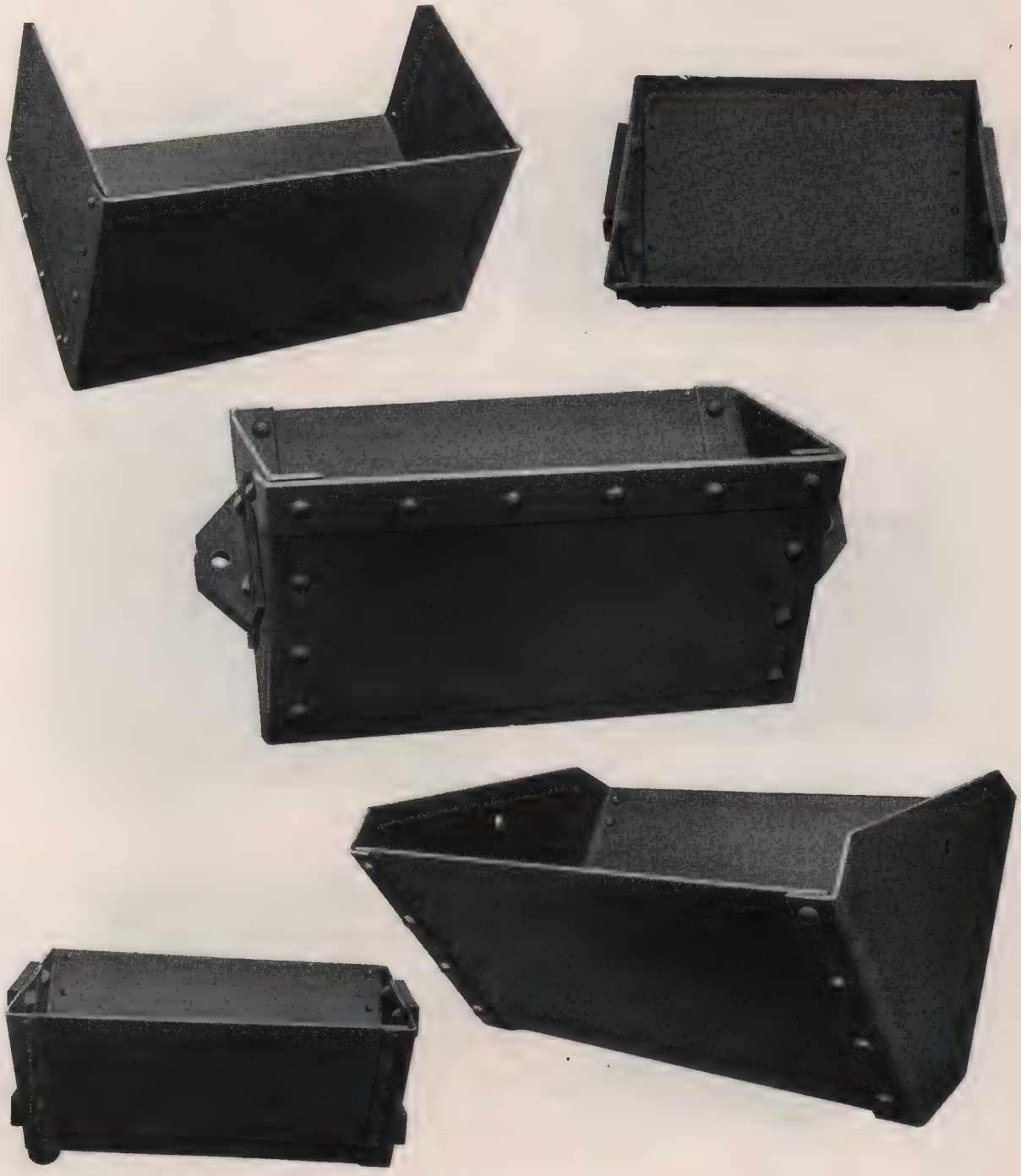
Elevator Buckets



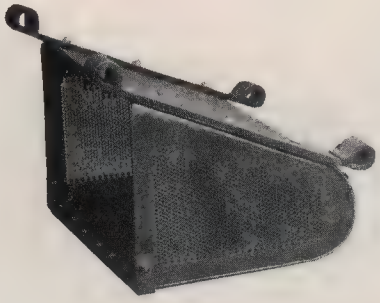


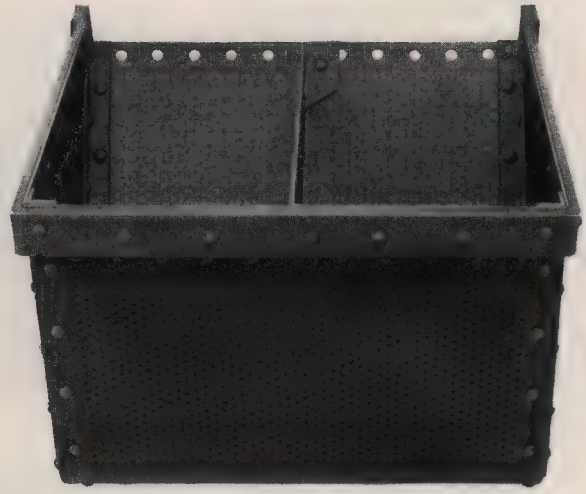


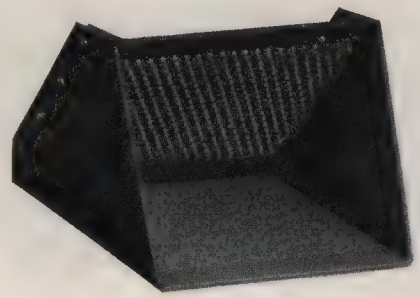
Elevator Buckets

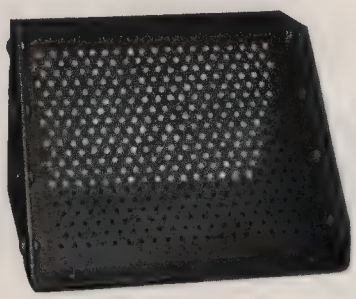


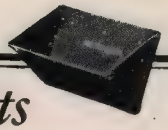
Perforated Elevator Buckets



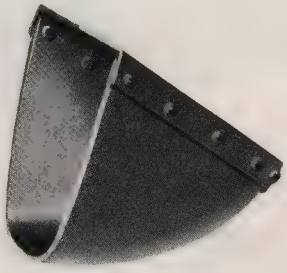






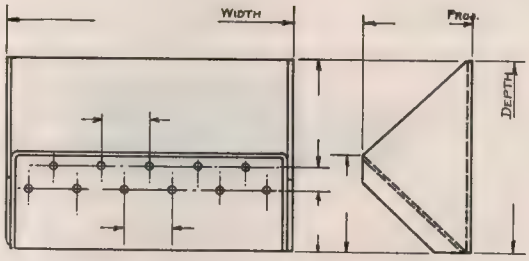


Duc Buckets

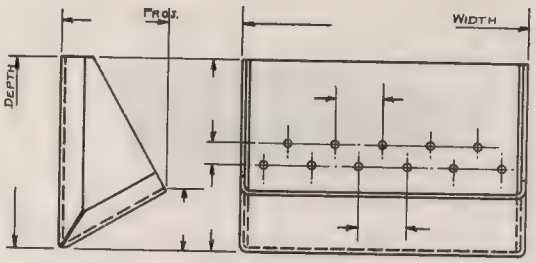


Information Required When Ordering Buckets

Fill in All Dimensions



TROUGH FRONT BUCKET



ACUTE HEEL SHELF BUCKET

No. of Buckets Required.....

Width Across Back.....

Depth of Bucket.....

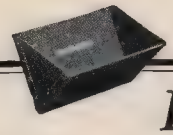
Projection of Bucket.....

Size of Attachment Holes.....

Position of Attachment Holes.....

Gauge of Steel.....

SEND FOR COPIES OF ABOVE SKETCHES

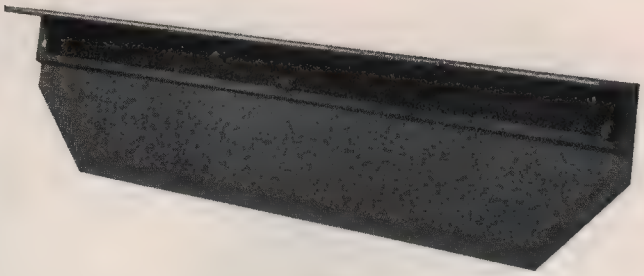


Elevator Buckets, Troughs and Flights

Flights

Style 1

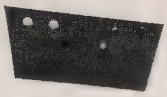
Style 2



Style 3

Style 4

Style 5



Style 6

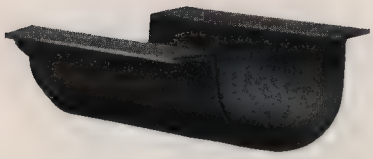
Style 7

Style 8

Conveyor Troughs

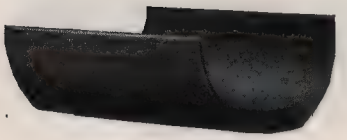
Style 1

Style 4



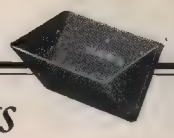
Style 2

Style 5

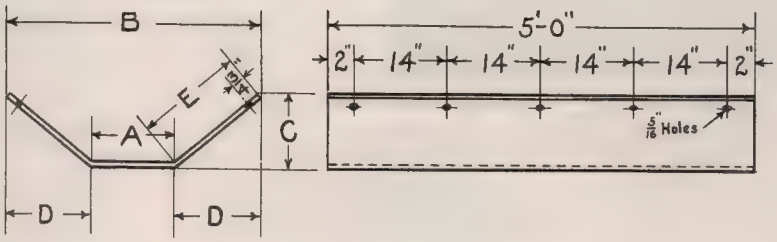


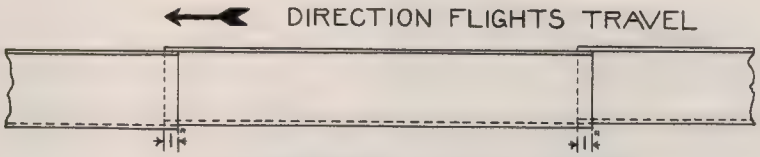
Style 3

Style 6



Standard Conveyor Troughs



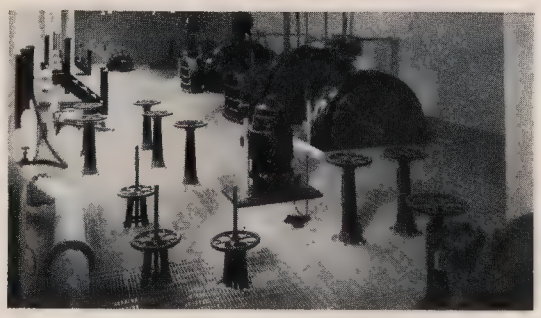


METHOD OF PLACING TROUGH

Size of Flight Inches	A Inches	B Inches	C Inches	D Inches	E Inches	Width of Sheet Inches	Gauge of Plate	Weight Pounds per Section
4 x 10	6¼	16	3⅜	4⅞	5⅞	18	10	45
4 x 12	7¾	18	3½	5	6⅛	20	10	48
5 x 10	6¼	19¼	4½	6½	7⅞	22	8	64
5 x 12	7¾	21	4⅜	6⅜	8⅛	24	8	70
5 x 15	9¼	23	4 13/16	6⅞	8⅜	26	8	76
6 x 18	11¼	26½	5⅜	7⅞	9⅜	30	6	104
8 x 18	11¼	31½	7	10⅛	12⅜	36	6	124
8 x 20	12¼	36⅜	8½	12 3/16	14⅞	42	¼	168
8 x 24	14¾	42	9½	13⅜	16⅝	48	¼	204
10 x 24	14¾	42	9½	13⅜	16⅝	48	¼	204
10 x 30	18¼	45⅝	9 13/16	13 13/16	17	52	¼	221
12 x 36	21¾	55⅛	11 3/16	15¾	19⅛	60	¼	255

Mitco Products

Mitco Interlocked Steel Grating



20,000 square feet of Mitco Interlocked Steel Grating are installed in Long Beach No. 3 plant of Southern California Edison Co.

Wherever open flooring is required, Mitco Interlocked Steel Grating meets every requirement. It is high in strength and more permanently rigid, has a non-slipping and non-clogging surface, and provides maximum light and ventilation.

Mitco Armorgrids

In the plant of Oakland Motor Car Company, thousands of square feet of floor and platform area are reinforced with Mitco Armorgrids.

Used as reinforcement for floors, platforms and driveways made of concrete, cement or other pourable materials, Mitco Armorgrids give battleship armor strength and resistance to shocks, excessive wear and crackouts. They are quickly and easily installed; no fastening, fitting or assembling is necessary.

Mitco Shur-Site Stair Treads

Sure sight on the steps is assured by Mitco Shur-Site Stair Treads at the Producers & Refiners Corporation, Parco, Wyoming.

On stairs and ladder steps, Mitco Shur-Site Treads make the front edge of every step stand out clearly, preventing falls. Their Mitco Grating construction presents a smooth surface underfoot, and gives the walker confidence.

Interesting bulletins on Mitco Products are available. Write us.

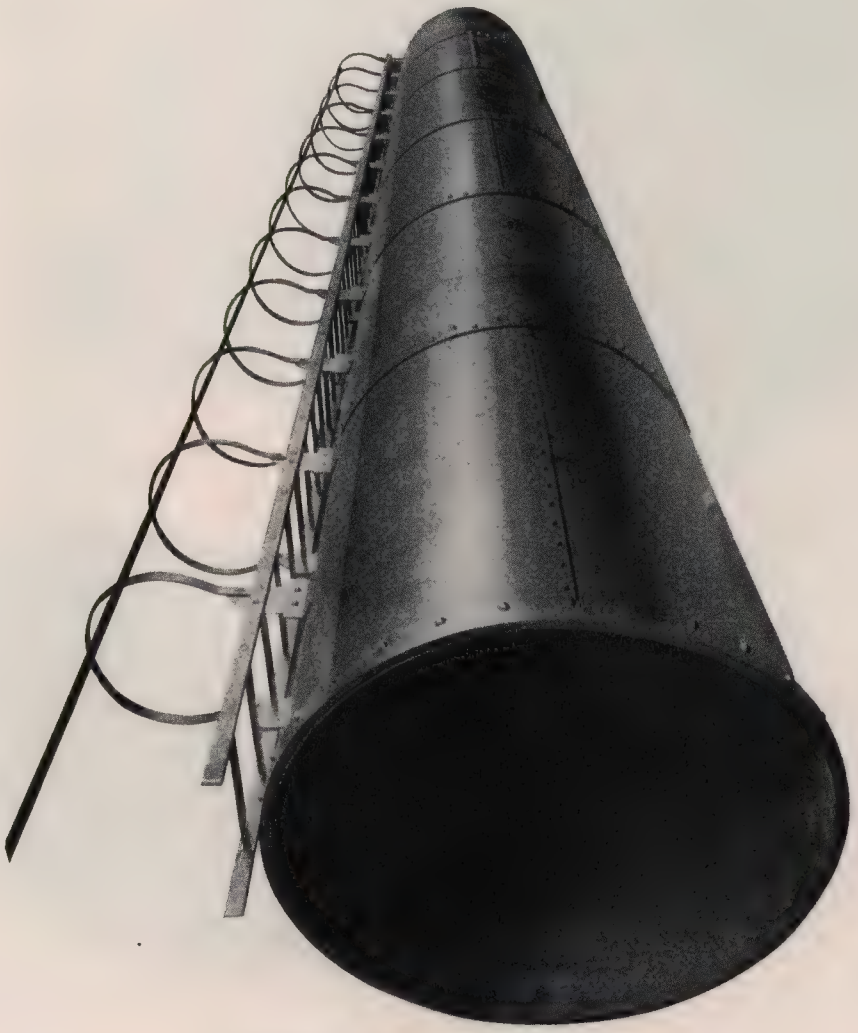
Light and Heavy Steel Plate Construction Department

MANY types of light and heavy steel plate construction are made in this department.

Here are just a few:

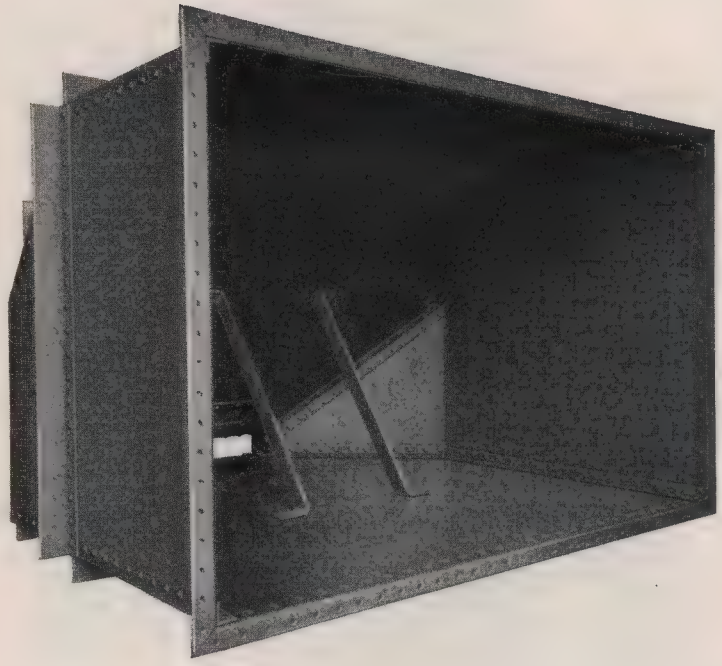
Tanks, Hoppers, Coal and Ash Bunkers, Stacks, Flues, Machinery Guards, Mine Cars, Mine Car Parts, Conveying Lines, Truck Bodies.

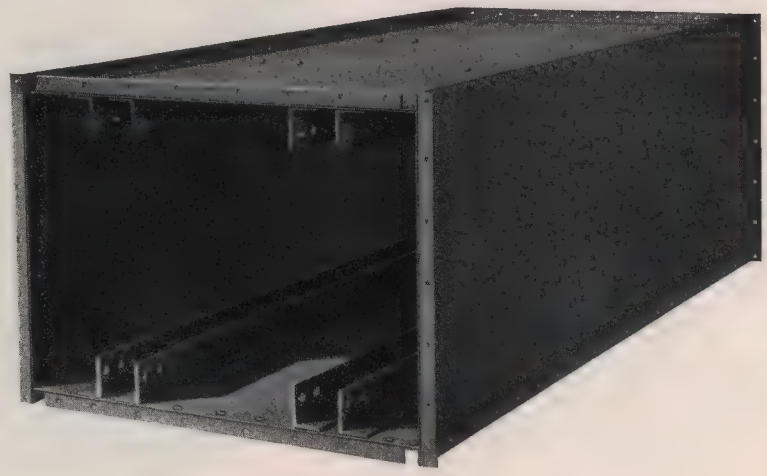
The next few pages show some of these structures and pieces of equipment. In requesting prices, send sketches, blue prints and specifications.



A section of 100 ft. stack with safety ladder

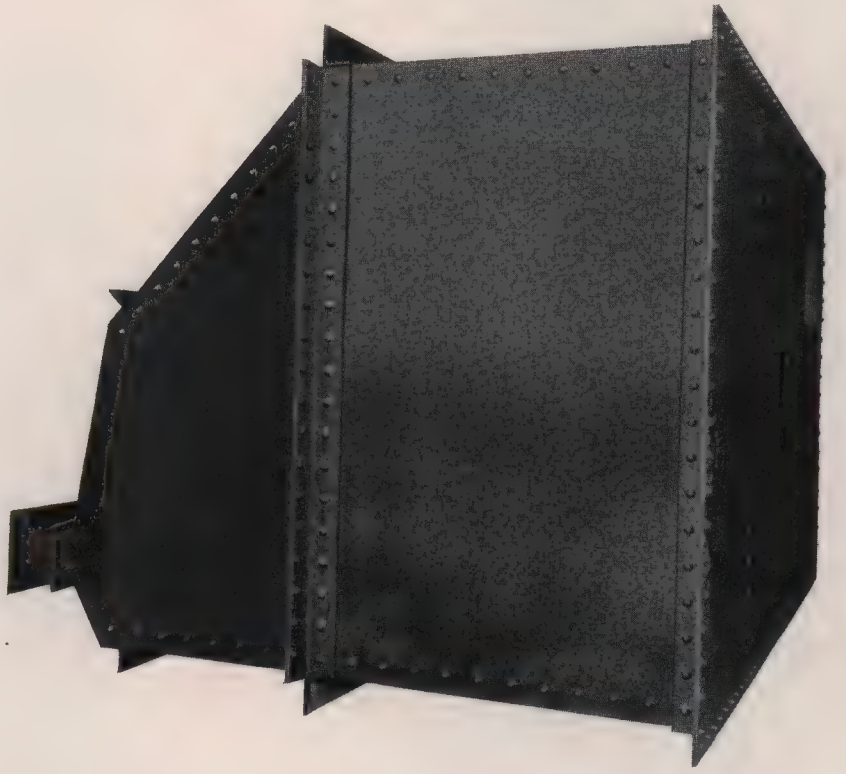
Hoppers and Elevator Casings



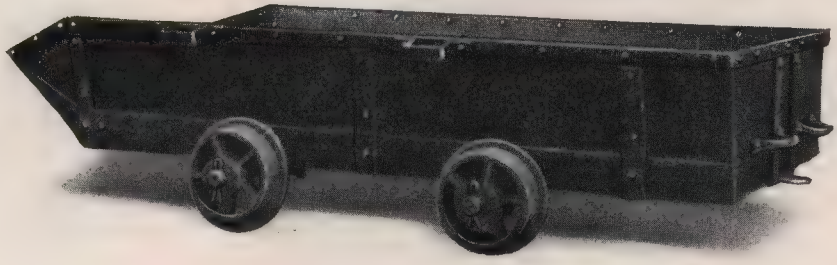


Light and Heavy Steel Plate Construction Dep't.

Coal or Ash Hoppers



Mine Buggies



Standard Meshes and Gauges for Anthracite Coal

Round Perforations

Size of Coal	Test Screen Diameter of Hole Inches (Through Size)	Distance Apart of Centers Inches	Standard Thickness of Plate
Lump	6	7½	½" or ¾"
Broken	4⅜	5⅜	½"
Egg	3⅜	4 3/16	⅜"
Stove	2 7/16	3⅛	5/16"
Nut	1 9/16	2	¼"
Pea	¾	1	6
Buckwheat	½	¾	8
Rice and Boiler	5/16	15/32	10
*Barley	* 9/16	17/64	10

* These sizes usually furnished in Manganese bronze.

Other Meshes and Gauges for Anthracite Coal

Round Perforations

Diameter of Hole —Inches	Distance Apart of Centers—Inches	Thickness of Plate	Diameter of Hole —Inches	Distance Apart of Centers—Inches	Thickness of Plate
2⅝	3⅜	⅜" or 5/16"	⅜	½	10
2 9/16	3 3/16	⅜" or 5/16"	9/32	13/32	10
2½	3¼	⅜" or 5/16"	¼	⅜	10
2⅜	2⅞	⅜" or 5/16"	7/32	11/32	10
1⅝	2	¼"	* 11/64	17/64	10
1½	2	¼"	* 5/32	¼	12
1 3/16	1⅛	6	* ⅛	7/32	12
¾	1	6	* 3/32	5/32	14
23/32	1	6	* 5/64	⅛	16
11/16	15/16	6	* 1/16	7/64	16
⅝	⅞	6	* 3/64	3/32	18
9/16	¾	8	* 1/32	1/16	20

* These sizes usually furnished in Manganese bronze.

U. S. Standard Gauge Table For Sheet and Plate Steel

No.	Sheet Metal			Number of Gauge	Thickness in Fractions of an Inch	Thickness in Decimal Parts of an Inch	Weight of Steel per Square Foot in Pounds	Weight of Stainless Iron and Steel, Armco Iron and Toncan Iron per Sq. Ft. in Pounds	Weight of Monel per Square Foot in Pounds	Weight of Nickel per Square Foot in Pounds
00		.34375	11/32							
0		.3125	5/16							
				0000000	1/2	.5	20.4	20.00		
				000000	15/32	.46875	19.125	18.75		
1		.28125	9/32	00000	7/16	.4375	17.85	17.50		
				0000	13/32	.40625	16.575	16.25		
2		.265625	17/64	000	3/8	.375	15.300	15.		
				00	11/32	.34375	14.025	13.75		
				0	5/16	.3125	12.75	12.50		
3		.25	1/4	1	9/32	.28125	11.475	11.25		
				2	17/64	.265625	10.837	10.625		
4		.234375	15/64	3	1/4	.25	10.200	10.	11.49	11.493
				4	15/64	.234375	9.562	9.375	10.77	10.774
5		.21875	7/32	5	7/32	.21875	8.925	8.75	10.06	10.056
6		.203125	13/64	6	13/64	.203125	8.287	8.125	9.34	9.338
				7	3/16	.1875	7.65	7.5	8.62	8.619
				8	11/64	.171875	7.01	6.875	7.90	7.901
7		.1875	3/16	9	5/32	.15625	6.38	6.25	7.18	7.183
8		.171875	11/64	10	9/64	.140625	5.74	5.625	6.47	6.465
				11	1/8	.125	5.1	5.	5.75	5.746
9		.15625	5/32	12	7/64	.109375	4.46	4.375	5.03	5.028
				13	3/32	.09375	3.83	3.75	4.31	4.310
10		.140625	9/64							
				14	5/64	.078125	3.19	3.125	3.59	3.591
11		.125	1/8	15	9/128	.0703125	2.87	2.8125	3.23	3.232
				16	1/16	.0625	2.55	2.5	2.87	2.873
12		.109375	7/64	17	9/160	.05625	2.30	2.25	2.59	2.586
13		.09375	3/32							
14		.078125	5/64	18	1/20	.05	2.04	2.	2.30	2.30
				19	7/160	.04375	1.78	1.75	2.01	2.011
15		.0703125		20	3/80	.0375	1.53	1.50	1.72	1.724
				21	11/320	.034375	1.40	1.375	1.58	1.580
16		.0625	1/16							
17		.05625		22	1/32	.03125	1.28	1.25	1.44	1.437
18		.05	1/20	23	9/320	.028125	1.15	1.125	1.29	1.293
				24	1/40	.025	1.02	1.	1.15	1.149
19		.04375		25	7/320	.021875	.892	.875	1.01	1.005
20		.0375								
21		.034375		26	3/160	.01875	.765	.75	.86	.862
22		.03125	1/32	27	11/640	.0171875	.701	.6875		
23		.028125		28	1/64	.015625	.638	.625		
24		.025		29	9/640	.0140625	.574	.5625		
25		.021875								
26		.01875		30	1/80	.0125	.51	.5		
27		.0171875								

Add .156 to weights of iron and steel to secure weight of galvanized material. We will furnish plate and sheet steel rolled to U. S. Standard Gauge unless otherwise instructed.

Tables of Weights

Weight of Sheet Metals

Birmingham Gauge Table

BIRMINGHAM (STUBS) WIRE GAUGE

Number of Gauge	Thickness in Decimals of an Inch	Weight Per Square Foot in Pounds			
		Steel	Manganese Bronze	Copper	Yellow Metal
0000	.454	18.52	19.85	21.02	19.739
000	.425	17.34	18.58	19.68	18.478
00	.380	15.50	16.61	17.59	16.521
0	.340	13.87	14.86	15.74	14.782
1	.300	12.24	13.12	13.89	13.043
2	.284	11.58	12.42	13.15	12.347
3	.259	10.56	11.32	11.99	11.260
4	.238	9.71	10.40	11.02	10.347
5	.220	8.97	9.62	10.19	9.565
6	.203	8.28	8.87	9.399	8.826
7	.180	7.34	7.87	8.334	7.826
8	.165	6.73	7.22	7.639	7.173
9	.148	6.03	6.47	6.852	6.434
10	.134	5.46	5.86	6.204	5.826
11	.120	4.896	5.25	5.556	5.217
12	.109	4.447	4.77	5.047	4.739
13	.095	3.876	4.15	4.399	4.130
14	.083	3.386	3.63	3.843	3.608
15	.072	2.937	3.15	3.334	3.130
16	.065	2.652	2.85	3.009	2.826
17	.058	2.366	2.54	2.685	2.521
18	.049	1.999	2.14	2.269	2.130
19	.042	1.713	1.84	1.945	1.826
20	.035	1.428	1.53	1.621	
21	.032	1.305	1.40	1.482	
22	.028	1.142	1.22	1.296	
23	.025	1.020	1.09	1.158	
24	.022	.897	.96	1.019	
25	.020	.816	.87	.9260	
26	.018	.734	.79	.8334	
27	.016	.652	.70	.7408	
28	.014	.571	.61	.6482	
29	.013	.530	.57	.6019	
30	.012	.489	.52	.5556	

The weight per square foot of any metal can be readily calculated by multiplying the width by the length by the thickness and the result by the constant for the pounds per cubic inch. For example, sheet copper 12″ wide x 12″ long x .454″ : 12 x 12 = 144″ x .454″ = 65.376 x .3215 = 21.02 pounds per square foot.

Brown & Sharpe Gauge Table

BROWN & SHARPE'S (AMERICAN) GAUGE

Number of Gauge	Thickness in Decimals of an Inch	Weight Per Square Foot in Pounds			
		Brass	Copper	Yellow Metal	Aluminum
0000	.4600	20.27	21.30	20.00	6.48
000	.4096	18.05	18.97	17.808	5.77
00	.3648	16.07	16.89	15.86	5.14
0	.3249	14.31	15.04	14.126	4.58
1	.2893	12.75	13.39	12.578	4.08
2	.2576	11.35	11.93	11.20	3.63
3	.2294	10.11	10.62	9.973	3.23
4	.2043	9.002	9.460	8.882	2.88
5	.1819	8.016	8.424	7.908	2.56
6	.1620	7.139	7.502	7.043	2.28
7	.1443	6.357	6.681	6.273	2.03
8	.1285	5.661	5.949	5.586	1.81
9	.1144	5.042	5.298	4.973	1.61
10	.1019	4.490	4.718	4.430	1.44
11	.0907	3.998	4.201	3.945	1.28
12	.0808	3.560	3.741	3.513	1.14
13	.0720	3.171	3.332	3.128	1.01
14	.0641	2.824	2.967	2.786	.903
15	.0571	2.514	2.642	2.481	.804
16	.0508	2.239	2.353	2.209	.716
17	.0453	1.994	2.096	1.967	.638
18	.0403	1.776	1.866	1.752	.568
19	.0359	1.581	1.662		.506
20	.0320	1.408	1.480		.450
21	.0285	1.254	1.318		.401
22	.0253	1.117	1.174		.357
23	.0226	.9945	1.045		.318
24	.0201	.8856	.9307		.283
25	.0179	.7887	.8288		.252
26	.0159	.7024	.7381		.225
27	.0142	.6255	.6573		.200
28	.0126	.5570	.5853		.178
29	.0113	.4960	.5212		.159
30	.0100	.4417	.4642		.141

POUNDS PER CUBIC INCH VARIOUS METALS

Steel	.2833
Tobin Bronze	.3036
Manganese Bronze	.3036
Brass	.306
Copper	.3215
Yellow Metal	.3015
Commercial Bronze	.318
Aluminum	.0978
Monel	.320
Ascoloy 33	.276
Nickel	.319
Allegheny Metal	.283

Comparison of Standard Gauges

Thickness in Decimals of an Inch

Number of Gauge	United States Standard	American or Brown & Sharpe	Birmingham or Stubs	Washburn & Moen Mfg. Co., Worcester, Mass.	Trenton Iron Co., Trenton, N. J.	Old English from Manufacturers' List	British Imperial or English Legal Standard Wire Gauge
0000000	.500	.....	.....	.....	.....	.....	.500
000000	.46875	.....	.....	.4600	.....	.....	.464
00000	.4375	.....	.....	.4300	.450	.....	.432
0000	.40625	.46	.454	.3938	.400	.454	.400
000	.375	.40964	.425	.3625	.360	.425	.372
00	.34375	.36479	.380	.3310	.330	.380	.348
0	.3125	.32486	.340	.3065	.305	.340	.324
1	.28125	.2893	.300	.2830	.285	.300	.300
2	.265625	.25763	.284	.2625	.265	.284	.276
3	.25	.22942	.259	.2437	.245	.259	.252
4	.234375	.20431	.238	.2253	.225	.238	.232
5	.21875	.18194	.220	.2070	.205	.220	.212
6	.203125	.16202	.203	.1920	.190	.203	.192
7	.1875	.14428	.180	.1770	.175	.180	.176
8	.171875	.12849	.165	.1620	.160	.165	.160
9	.15625	.11443	.148	.1483	.145	.148	.144
10	.140625	.10189	.134	.1350	.130	.134	.128
11	.125	.090742	.120	.1205	.1175	.120	.116
12	.109375	.080808	.109	.1055	.105	.109	.104
13	.09375	.071962	.095	.0915	.0925	.095	.092
14	.078125	.064084	.083	.0800	.0806	.083	.080
15	.0703125	.057068	.072	.0720	.070	.072	.072
16	.0625	.050821	.065	.0625	.061	.065	.064
17	.05625	.045257	.058	.0540	.0525	.058	.056
18	.05	.040303	.049	.0475	.045	.049	.048
19	.04375	.035890	.042	.0410	.040	.045	.040
20	.0375	.031961	.035	.0348	.035	.035	.036
21	.034375	.028462	.032	.03175	.031	.0315	.032
22	.03125	.025346	.028	.0286	.028	.0295	.028
23	.028125	.022572	.025	.0258	.025	.027	.024
24	.025	.020101	.022	.0230	.0225	.025	.022
25	.021875	.017900	.020	.0204	.020	.023	.020
26	.01875	.015941	.018	.0181	.018	.0205	.018
27	.0171875	.014195	.016	.0173	.017	.01875	.0164
28	.015625	.012641	.014	.0162	.016	.0165	.0148
29	.0140625	.011257	.013	.0150	.015	.0155	.0136
30	.0125	.010025	.012	.0140	.014	.01375	.0124
31	.0109375	.008928	.010	.0132	.013	.01225	.0116
32	.01015625	.007950	.009	.0128	.012	.01125	.0108
33	.009375	.007080	.008	.0118	.011	.01025	.0100
34	.00859375	.006305	.007	.0104	.010	.0095	.0092
35	.0078125	.005615	.005	.0095	.0095	.009	.0084
36	.00703125	.005000	.004	.0090	.009	.0075	.0076
37	.00664062	.004453	.....	.0085	.0085	.0065	.0068
38	.00625	.003965	.....	.0080	.008	.00575	.0060
39	.....	.003531	.....	.0075	.0075	.005	.0052
40	.....	.003144	.....	.0070	.007	.0045	.0048

Fractions of Inches vs. Decimals

Fractions of one inch and decimal equivalents

1/64	.015625	17/64	.265625	33/64	.515625	49/64	.765625
1/32	.03125	9/32	.28125	17/32	.53125	25/32	.78125
3/64	.046875	19/64	.296875	35/64	.546875	51/64	.796875
1/16	.0625	5/16	.3125	9/16	.5625	13/16	.8125
5/64	.078125	21/64	.328125	37/64	.578125	53/64	.828125
3/32	.09375	11/32	.34375	19/32	.59375	27/32	.84375
7/64	.109375	23/64	.359375	39/64	.609375	55/64	.859375
1/8	.125	3/8	.375	5/8	.625	7/8	.875
9/64	.140625	25/64	.390625	41/64	.640625	57/64	.890625
5/32	.15625	13/32	.40625	21/32	.65625	29/32	.90625
11/64	.171875	27/64	.421875	43/64	.671875	59/64	.921875
3/16	.1875	7/16	.4375	11/16	.6875	15/16	.9375
13/64	.203125	29/64	.453125	45/64	.703125	61/64	.953125
7/32	.21875	15/32	.46875	23/32	.71875	31/32	.96875
15/64	.234375	31/64	.484375	47/64	.734375	63/64	.984375
1/4	.25	1/2	.50	3/4	.75	1	1.

Circumference and Area of Circles

From 1 inch to 120 inches diameter

Diameter	Circumference	Area	Diameter	Circumference	Area
1/64	.04909	.00019	27/32	2.6507	.55914
1/32	.09818	.00077	7/8	2.7489	.60132
3/64	.14726	.00173	29/32	2.8471	.64504
1/16	.19635	.00307	15/16	2.9452	.69029
3/32	.29452	.00690	31/32	3.0434	.73708
1/8	.39270	.01227	1	3.1416	.7854
5/32	.49087	.01917	2	6.2832	3.1416
3/16	.58905	.02761	3	9.4248	7.0686
7/32	.68722	.03758	4	12.5664	12.5664
1/4	.78540	.04909	5	15.7080	19.635
9/32	.88357	.06213	6	18.850	28.274
5/16	.98175	.07670	7	21.991	38.485
11/32	1.0799	.09281	8	25.133	50.266
3/8	1.1781	.11045	9	28.274	63.617
13/32	1.2763	.12962	10	31.416	78.540
7/16	1.3744	.15033	11	34.558	95.033
15/32	1.4726	.17257	12	37.699	113.10
1/2	1.5708	.19635	13	40.841	132.73
17/32	1.6690	.22166	14	43.982	153.94
9/16	1.7671	.24850	15	47.124	176.71
19/32	1.8653	.27688	16	50.265	201.06
5/8	1.9635	.30680	17	53.407	226.98
21/32	2.0617	.33824	18	56.549	254.47
11/16	2.1598	.37122	19	59.690	283.53
23/32	2.2580	.40574	20	62.832	314.16
3/4	2.3562	.44179	21	65.973	346.36
25/32	2.4544	.47937	22	69.115	380.13
13/16	2.5525	.51849	23	72.257	415.48

Circumference and Area of Circles

From 1 inch to 120 inches diameter

Diameter	Circumference	Area	Diameter	Circumference	Area
24	75.398	452.39	72	226.195	4071.50
25	78.540	490.87	73	229.336	4185.39
26	81.681	530.93	74	232.478	4300.84
27	84.823	572.56	75	235.619	4417.86
28	87.965	615.75	76	238.761	4536.46
29	91.106	660.52	77	241.903	4656.63
30	94.248	706.86	78	245.044	4778.36
31	97.389	754.77	79	248.186	4901.67
32	100.531	804.25	80	251.327	5026.55
33	103.673	855.30	81	254.469	5153.00
34	106.814	907.92	82	257.611	5281.02
35	109.956	962.11	83	260.752	5410.61
36	113.097	1017.88	84	263.894	5541.77
37	116.239	1075.21	85	267.035	5674.50
38	119.381	1134.11	86	270.177	5808.80
39	122.522	1194.59	87	273.319	5944.68
40	125.664	1256.64	88	276.460	6082.12
41	128.805	1320.25	89	279.602	6221.14
42	131.947	1385.44	90	282.743	6361.73
43	135.088	1452.20	91	285.885	6503.88
44	138.230	1520.53	92	289.027	6647.61
45	141.372	1590.43	93	292.168	6792.91
46	144.513	1661.90	94	295.310	6939.78
47	147.655	1734.94	95	298.451	7088.22
48	150.796	1809.56	96	301.593	7238.23
49	153.938	1885.74	97	304.734	7389.81
50	157.080	1963.50	98	307.876	7542.96
51	160.221	2042.82	99	311.010	7697.69
52	163.363	2123.72	100	314.16	7853.98
53	166.504	2206.18	101	317.30	8011.85
54	169.646	2290.22	102	320.44	8171.28
55	172.788	2375.83	103	323.58	8332.29
56	175.929	2463.01	104	326.73	8494.87
57	179.071	2551.76	105	329.87	8659.01
58	182.212	2642.08	106	333.01	8824.73
59	185.354	2733.97	107	336.15	8992.02
60	188.496	2827.43	108	339.29	9160.88
61	191.637	2922.47	109	342.43	9331.32
62	194.779	3019.07	110	345.58	9503.32
63	197.920	3117.25	111	348.72	9676.89
64	201.062	3216.99	112	351.86	9852.03
65	204.204	3318.31	113	355.00	10028.75
66	207.345	3421.19	114	358.14	10207.03
67	210.487	3525.65	115	361.28	10386.89
68	213.628	3631.68	116	364.42	10568.32
69	216.770	3739.28	117	367.57	10751.32
70	219.911	3848.25	118	370.71	10935.88
71	223.053	3959.19	119	373.85	11122.02
			120	376.99	11309.73

Example showing use of this table for finding the circumference of a circle $27\frac{51}{64}$ inches in diameter. From table take:

Circumference of 27 inches = 84.823
Circumference of $\frac{25}{32}$ inch = 2.4544
Circumference of $\frac{1}{64}$ inch = .04909
Total = $27\frac{51}{64}$ inches = 87.32649

Explanation: Take nearest inch, then the nearest fraction listed which in this case is $\frac{25}{32}$ inch. Then add to the $\frac{25}{32}$ inch the $\frac{1}{64}$ inch which would bring the total up to the circumference required of $27\frac{51}{64}$ inches.
This rule does not apply to area.

Index

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